

**COASTAL MANAGEMENT LINES AS A KEY TOOL TO PROMOTE INTEGRATED
COASTAL MANAGEMENT: A COMPARATIVE REVIEW OF SOUTH AFRICA'S EMERGING
LEGAL FRAMEWORK WITH THAT OF SELECTED EURO-MEDITERRANEAN COUNTRIES**

By:

Alecia Pienaar (PNRALE006)

Supervisor:

Professor Alexander Paterson

Institute of Marine and Environmental Law

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ABSTRACT

The coastal zone represents an endemic ecosystem of geomorphic complexity, characterised by its dynamic state of transition and increasing sensitivity. It is widely acknowledged that the environmental complexities and distinctiveness of this area is an attribute matched only by its attractiveness for human settlement and resource utilisation. Viewed through an environmental lens, the proliferation of urban coastal development is, however, diminishing coastal resilience to an extent that is both unsustainable and injudicious.

In this context, proper management of the coastal zone necessitates the application of integrated land use planning mechanisms responsive not only to the ecological dynamics of a land-sea interface, but also to the increasing pressures of human use and development activities. This dissertation identified set-back lines or coastal management lines (CMLs) as a regulatory mechanism that essentially conforms to such criterion.

South Africa is currently experimenting with implementing the provisions in the *National Environmental Management: Integrated Coastal Management Act 24 of 2008* (NEMICMA), which provides for CMLs as a key tool for promoting integrated coastal management. The aim of this dissertation was to critically review the domestic legal framework and experience to date in implementing this scheme. Owing to the novelty of CMLs in the South African jurisdiction, a reference point or legal backdrop was necessary to critically evaluate the peculiarities and potential of the NEMICMA framework. For this reason, this dissertation undertook a critical and comparative study on the regulation of CMLs in both South Africa and selected Euro-Mediterranean states, namely France, Spain and Greece.

Given that CMLs are deemed to be a well-entrenched tool the selected Mediterranean coastal states, this dissertation could draw on their experience and distil key lessons for South African authorities tasked with implementing and possibly refining the relevant legal regime. Through such enterprise this dissertation was further able to conclude that whilst certain isolated issues prevent effective and timeous implementation, South Africa's current legal framework governing CMLs is essentially well aligned with the ideals of integrated coastal management to

the extent that CMLs could become a pragmatic and equitable legal response to facilitate sustainable coastal development.

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LIST OF ABBREVIATIONS/ACRONYMS

AC	Autonomous Community
EA	Environmental authorisation
EC	European Commission
EIA	Environmental impact assessment
EU	European
EU-Med	Euro-Mediterranean
CAL	Coastal access land
CELRL	<i>Conservatoire de l'Espace Littoral et des Rivages Lacustres</i>
CML	Coastal management line
CMP	Coastal management programme
CPP	Coastal public property
CPZ	Coastal protection zone
CZ	Coastal zone
DEA	Department of Environmental Affairs
DGC-SME	Directorate General for the Coasts of the Spanish Ministry of the Environment
FOA	Food and Agriculture Organization of the United Nations
GDP	General Development Plan
GFSPSD	General Framework for Spatial Planning and Sustainable Development
GIS	Geographic information system
GUP	General urban plan
HPCRE	Hellenic Public Corporation of Real Estate
HWM	High water mark
I&AP	Interested and affected party
ICM	Integrated coastal management
ICZM	Integrated coastal zone management
IDP	Integrated development plan
IPCC	Intergovernmental Panel on Climate Change
<i>J Coast Conserv</i>	<i>Journal of Coastal Conservation</i>
<i>JCR</i>	<i>Journal of Coastal Research</i>
LDC	<i>Ley de Costas</i>
LWM	Low water mark
MEC	Member of the Executive Council
MEPPPW	Ministry of the Environment, Physical Planning and Public Works
MTPD	Maritime-Terrestrial Public Domain
NCMP	National Coastal Management Programme
NEMA	National Environmental Management Act 107 of 1998
NEMICMA	National Environmental Management: Integrated Coastal Management Act 24 of 2008
OCM	<i>Ocean & Coastal Management</i>
PEZ	Public Easement Zone
PLA	Provincial lead agencies
PLU	<i>Plan Local d'Urbanisme</i>
POS	<i>Plan d'Occupation du Sol</i>

PNRPP	Predicable Natural Risk Prevention Plan
RFSPSD	Regional Frameworks for Spatial Planning and Sustainable Development
SAGJ	<i>South African Geographical Journal</i>
SAIIA	South African Institute of International Affairs
SCA	Spanish Coastal Act
SCS	Strategy for Coastal Sustainability
SDAL	<i>Schéma Directeur d' Aménagement du Littoral</i>
SLR	Sea-level rise
SICZMS	Spanish Integrated Coastal Zone Management Strategy
SFSPSD	Special Frameworks for Spatial Planning and Sustainable Development
TP	Town plan
UN	United Nations
UNEP	United Nations Environmental Programme
WCDEADP	Western Cape Government: Department of Environmental Affairs & Development Planning

1 INTRODUCTION

1.1 Context

The coastal zone (CZ) represents an endemic ecosystem of geomorphic complexity, characterised by its dynamic state of transition¹ and increasing sensitivity.² Worldwide coastal margins have, however, become “fraught with management complexities”³ that extend beyond ecological intricacies. It is widely acknowledged that the environmental complexities and distinctiveness of the coastal area is an attribute matched only by its attractiveness for human settlement and resource utilisation.⁴ With high property, aesthetic and economic value, it is already home to more than half of the world’s population,⁵ with migration from inland areas to the coast increasing.⁶ Concomitant hereto is the introduction of housing developments and “at least half of the infrastructure for manufacture, transportation, energy processing, and consumption that these population require, as well as more than half of the waste products and tourism”.⁷ As these developments interact and converge with complex natural processes,⁸ coastal areas fall victim to the increasing pressures of over-development.⁹

Viewed through an environmental lens, the proliferation of urban coastal development is, however, injudicious and unsustainable. In light of current and future coastal stresses, especially climate change induced threats such as coastal erosion and flooding,¹⁰ such proclivity to over-development is disproportionate and apathetic to the increasing fragility of the CZ. Proper management of the CZ thus necessitates the application of integrated land use planning mechanisms responsive not only to the ecological dynamics of a land-sea interface,

1 Arnold 2011 *Syracuse Law Review* 214.

2 Malvárez et al 2015 *J Coast Conserv* 633.

3 Western Cape Government: Department of Environmental Affairs & Development Planning (WCDEADP) 2012 “The Establishment of Coastal Set-back Lines for the Overberg District” (*Overberg 2012 Report*) 5.

4 *Overberg 2012 Report* 5; Frost 2009 *Ocean & Coastal Management (OCM)* 294.

5 Pranzini, Wetzel & Williams 2015 *J Coast Conserv* 446.

6 Department of Environmental Affairs (DEA): Oceans & Coasts 2014 *National Coastal Management Programme (NCMP)* iii.

7 Olsen, Tobey & Kerr 1997 *OCM* 155.

8 Alves et al 2015 *J Coast Conserv* 269.

9 Whittall & Fisher 2011 “Implications of the Integrated Coastal Management Act” 5; Cicin-Sain & Belfiore 2005 *OCM* 850-851.

10 Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 410.

but also to the increasing pressures of human use and development activities. Set-back lines or *coastal management lines*¹¹ (CMLs) theoretically conform to such criterion.¹²

The demarcation of CMLs is described as a pre-emptive *managed retreat*¹³ strategy that prescribes boundaries that indicate the limit of development along ecologically sensitive or vulnerable areas. Once established, the lines effectively restrict the construction, extension or repair of structures that are either wholly or partly seaward of the CML.¹⁴ In short, CMLs are buffer zones located between the shoreline and development, identified as potentially key *ecological corridors*¹⁵ that could give specific direction to decision makers in locating the future coastal development footprint.¹⁶ The ideal is to allow for “the functioning of natural coastal processes without impacting on development or being impacted upon by development”.¹⁷ It is thus a strategic attempt to attain balance at that controversial point where the environmental characteristics of the CZ intersect with its development potential by addressing both the ecological dynamics of the CZ and the pressures of human interaction with the coast.¹⁸ In drawing lines of comparison between CMLs and other response strategies, such as coastal armouring or beach nourishment, academics have come to identify retreat setbacks or CMLs as the *de facto* world best practice for coastal management.¹⁹

International law advocates CMLs as a management approach that addresses complex coastal risks under uncertain conditions.²⁰ A buffer zone that restricts and regulates development to restore and protect coastal ecosystems is deemed to be well-aligned with the precautionary

11 Prior to 1 May 2015 the *National Environmental Management: Integrated Coastal Management Act* 24 of 2008 (NEMICMA) made reference to the term *coastal set-back line*. On 1 May 2015 the *National Environmental Management: Integrated Coastal Management Amendment Act* 36 of 2014 commenced and deleted the term *coastal set-back line* and replaced it with the term *coastal management line*. The two terms may be used interchangeably but for purposes of this dissertation, the term *coastal management line* or CML will be used.

12 McGuire & Lynch 2013 *Natural Resources and the Environment* 29.

13 Berry, Fahey & Meyers 2013 *Journal of Coastal Research (JCR)* 900.

14 Overberg 2012 Report 7.

15 Nelson Mandela Bay Municipality 2012 *Establishment of Coastal Set-back Lines for NMBM: Final Draft Report* 1.

16 Overberg 2012 Report 8.

17 WCDEADP 2010 *Development of a Methodology for Defining and Adopting Coastal Development Setback Lines (Western Cape 2010 Report)* 44.

18 Fish et al 2008 OCM 331.

19 Defeo et al 2009 *Estuarine, Coastal and Shelf Science* 7; Berry, Fahey & Meyers 2013 *JCR* 903.

20 Colenbrander, Cartwright & Taylor 2015 *South African Geographical Journal (SAGJ)* 6.

principle as embedded in the *Rio Declaration*.²¹ To manage uncertainty, it “introduces important features of ‘flexibility’ and ‘reversibility’, both of which are considered valuable in the context of rapidly evolving urban systems and dynamic [CZs]”.²²

In the South African jurisdiction, CMLs have been embedded within the legal framework for integrated coastal management via the promulgation of the *National Environmental Management: Integrated Coastal Management Act 24 of 2008* (NEMICMA). NEMICMA, aligning itself with the notion of best practice and the demands of international commitments,²³ marked the Legislature’s embrace of the necessary holistic, integrated approach that ought to underpin coastal management. NEMICMA acknowledges the “need to retain the coast as a shared and common asset, to retain the aesthetic and heritage value of the coast and to protect coastal biodiversity”.²⁴ Ancillary to this overarching commitment, NEMICMA introduces provisions for the establishment of coastal management lines as a spatial strategy to *inter alia* protect and preserve coastal public property (CPP), the coastal protection zone²⁵ (CPZ) or the aesthetic values of the CZ.²⁶ After a Member of the Executive Council (MEC) has, by notice in the *Gazette* established CMLs, a local municipality within whose area of jurisdiction a CML has been established must delineate the CML on a map that forms part of its zoning scheme. CMLs are therefore the regulatory mechanism that could facilitate a uniform approach to coastal planning insofar as it relates to the assessment of coastal vulnerability, the management of property with existing land use rights and establishment of conditions of use for further development in the CZ.²⁷

Nevertheless, given the spatial variability of coastal processes, the merit of CMLs as moratoria against coastal development is to be tested against its capacity to respond to a pressured, vulnerable ecological context in a state of constant flux. Such a stringent threshold for efficacy is further exacerbated by a number of elements that could undermine effective implementation:

21 UNEP 1992 *Rio declaration on environment and development*: Principle 15.

22 Colenbrander, Cartwright & Taylor 2015 SAGJ 6.

23 Ch 17 of UN 1992 *Agenda 21* provides for *inter alia* the protection of coastal areas and the protection, rational use and development of its living resources.

24 Colenbrander, Cartwright & Taylor 2015 SAGJ 6.

25 S 16 of NEMICMA sets out the composition of the CPZ; see par 4.2.2 below.

26 S 25 of NEMICMA.

27 WCDEADP 2015 *Coastal Management (Set-back) Lines for the Overberg District* (Overberg 2015 Report) 4; NCMP 69.

the novelty of the concept within the South African coastal management framework, climate change induced coastal impacts (sea-level rise (SLR), coastal flooding, coastal etc), governance challenges, existing private rights in coastal property and a fragmented spatial planning system. Where the contemporary legal landscape of NEMCIMA is to intersect with such convoluted setting, it may become difficult to harness CMLs as an efficacious instrument for coastal planning in South Africa.

Practical efforts to demarcate inception CML blueprints have indeed proven to be an arduous venture. In the Western Cape significant pilot testing was undertaken with a view to determine CMLs and an approach to practically introduce it. The venture exemplified that “the process of rendering a [CML] effective can be protracted and contested”.²⁸ The Overberg District pilot project, for instance, was found to be incompatible with the idiosyncrasies of the coastline and the current level of development.²⁹ Insofar as the interested and affected parties (I&APs) were consulted on the draft lines in the Overberg account, it was apparent that the proposed use of CML regulations was deemed to be an unsustainable arbitrary attempt to gain absolute authoritative control over the development of coastal property.³⁰ With reference to the Overberg project, the *Final Project Report* for CMLs for the West Coast District provided for key recommendations for the refinement of the methodology to determine development restrictions, suggesting *inter alia* that lines should result in a more focused and simplified regulatory system.³¹ Also in the *Western Cape 2010 Report*, a conclusive methodology is proposed but not implemented. Recognising that the establishment of CMLs along the entire Western Cape shoreline will be subject to delays, the Report employs a default CML as an interim measure and provides for recommendations for the prospective execution of the full methodology.³² Given the embryonic state of CMLs in the South African legal framework, it is, however difficult to ascertain whether the proposed refinements and recommendations would surmount practical challenges.

28 Colenbrander, Cartwright & Taylor 2015 SAGJ 2.

29 *Overberg 2012 Report* 36.

30 *Overberg 2012 Report* 35.

31 WCDEADP 2014 *Coastal Management/Set-back Lines for the West Coast District* (hereafter the *West Coast District 2014 Report*) 37.

32 *Western Cape 2012 Report* 26, 77.

1.2 Aim, primary research question & methodology

South Africa is currently experimenting with implementing the provisions in NEMICMA which provide for CMLs as a key tool for promoting integrated coastal management (ICM). The aim of this dissertation is to critically review the domestic legal framework and experience to date in implementing this scheme. Owing to the novelty of the South African regime, the dissertation undertakes a critical and comparative desktop study on the regulation of CMLs in both South Africa and selected Euro-Mediterranean (EU-Med) states. CMLs are deemed to be a well-entrenched tool in a number of Mediterranean coastal states³³ and the dissertation will seek to draw on their experience with a view to distil key lessons for South African authorities tasked with implementing and possibly refining the relevant legal regime. Through this enterprise, the dissertation ultimately seeks to determine whether South Africa's current legal framework governing CMLs, as formulated in NEMICMA and compared to similar regimes in selected Euro-Med countries, provides a pragmatic and equitable legal response to facilitating ICM in South Africa?

This desktop study consists of a literature review that will consider all relevant legislation, textbooks, policies and other suitable electronic resources. This will provide the basis from which to distil a series of key legal themes against which to consistently evaluate the conception and application of CMLs in the selected legal regimes. The themes selected for this structure are not exhaustive, but represent legal components that may influence the form, nature and successful implementation of CMLs.

For the purpose of comparison, this dissertation will reflect on the legal frameworks of France, Spain and Greece by reason that CMLs are existing planning tools within the respective regimes. Spain and France have been selected by reason that they are regarded as having more advanced coastal management systems.³⁴ This allows for an informed analysis of the potential of CMLs. Greece's provision for CMLs has undergone a number of amendments, which could be indicative of similar changes that ought to be imposed on the South African CML

33 Rochette et al 2010 *Coastal setback zones in the Mediterranean: A study of Article 8-2 of the Mediterranean ICZM Protocol* 6.

34 Sanò, Merchand & Medina 2010 *J Coast Conserv* 33.

regime. Furthermore, these EU-Med states are faced with similar coastal development issues and ICM complexities, including *inter alia* over-development, SLR, flooding and erosion. Also, despite analogous coastal contexts, there is no monotony as to the form and method for application of CMLs in the respective states. Clear lessons can thus be drawn from the experience of these states as to the elements of a workable CML regime to ultimately provide an informed review of the South African scheme.

1.3 Structure

The remainder of the dissertation is divided into four main parts. Part 2 of the dissertation outlines the theoretical context, and specifically the following: what is ICM; the different mechanisms for promoting ICM, the respective merits of these mechanisms, and why CMLs have risen to the fore as a favoured legal tool for promoting ICM. It furthermore seeks to construct a theoretical legal framework distilling a set of legal elements which would appear to underlie an effective CML regime. This theoretical legal framework will be used to structure the comparative and critical review of the relevant legal regimes of the selected EU-Med states and South Africa. This approach aims to ensure consistency in the comparative and critical legal review.

Part 3 contains the review of the selected EU-Med states. It proceeds with a brief summary of the legal frameworks of the selected countries, namely France, Spain and Greece. It then collectively analyses these countries' legal regimes against the elements contained in the theoretical legal framework themes outlined in Part 2, with a view to distilling possible relevant best practices for South Africa.

Part 4 undertakes the review of South Africa's relevant legal framework, as principally contained in the NEMICMA. To facilitate the comparative analysis, it is similarly structured to Part 3, firstly providing a brief overview of South Africa's legal framework of relevance to the implementation of CML, and secondly evaluating it against the elements contained in the theoretical legal framework themes outlined in Part 2.

Part 5 constitutes the conclusion of the dissertation, which seeks to bring the key threads of the comparative analysis together, providing insights as to the effectiveness of South Africa's approach to implementing CML, and possible lessons which can be drawn from the experience of the selected EU-Med countries with a view to refining the domestic regime.

2 THEORETICAL CONTEXT

2.1 Elements underpinning integrated coastal management

2.1.1 Coastal complexities

Home to sensitive, stressed ecosystems, but simultaneously representing an ideal location for “settlement, industry, harvesting of natural resources as well as recreational activities”,³⁵ the CZ calls for a distinctive yet integrated form of management. It is described as a dynamic zone, which spans the “unique transition from sea to land”, where human activity, ecology, economic and geomorphology interact.³⁶ As noted by Goble:³⁷

Coastal authorities are faced with managing a highly complex environment that is subjected to natural and anthropogenic pressure, driven by population increases and in-migration to coastal areas due to increased tourism, recreation, residential and industrial development, and urban encroachment.

It is trite that the cumulative effect of these multiple stressors has caused coasts to deteriorate worldwide, with scientists recording a global net erosion of beaches over the past century or longer.³⁸ Acknowledging that coastal erosion and accretion have always been inherent to the natural processes that shape the coastlines³⁹ — flooding, erosion, oceanic storms — human

35 *Overberg 2015 Report 1.*

36 Fabbri 1998 OCM 52.

37 Goble et al 2014 OCM 32-33.

38 Wong et al “Coastal systems and low-lying areas” 375.

39 Van Rijn 2011 OCM 869.

activity has not only intensified the rate at which it occurs,⁴⁰ but also decreased the resilience of the CZ to adapt to natural variability.⁴¹

Quite paradoxically, by impairing the integrity of the CZ with incessant development, coastal systems are losing their capacity to provide critical ecosystem services, placing coastal communities and their development at risk of erosion, climate change and SLR.⁴² Protection of this land-water interface thus calls for an integrated management paradigm such as ICM, which recognises the need to coalesce and balance ecocentric considerations with the anthropocentric pressures of urban encroachment.⁴³

2.1.2 Climate change & sea-level rise

Climate change adds a further dimension to the already intricate framework necessary for the proper management of the coastal environment.⁴⁴ In contrast to the predicaments associated with the aforementioned commonplace coastal verities, the challenges associated with climate change are unique, requiring the consideration of both short- and long-term coastal variation predictions. Changes relevant to the CZ include variance of temperatures, increase or decrease in wave power and direction, changes in ice-cover, wind and precipitation and a surge in extreme weather events.⁴⁵ The most pressing climate change phenomenon threatening the CZ is, however, the anticipated rise of sea levels.⁴⁶

In 2007, with reference to the potential effects of climate change, the IPCC highlighted the CZ to be an “area of particular concern”,⁴⁷ projecting sea levels to rise “within the range of 0.18-0.59 metres by 2090-2099 relative to 1980-1999 levels”.⁴⁸ The 2014 Report predicts that such rise is “*virtually certain* to continue beyond 2500 unless global temperature declines”.⁴⁹ The

40 Ibid 867.

41 Klein et al 2001 *JCR* 532.

42 Chevallier “Promoting the Integrated Governance” 7.

43 Fabbri 1998 *OCM* 52.

44 Wong et al “Coastal systems and low-lying areas” 367; Jacobson et al 2014 *OCM* 54.

45 European Commission (EC) “The economics of climate change” 5.

46 Gilbert & Vellinga “Coastal Zone Management” 143.

47 Nicholls et al “Coastal systems in low-lying areas” in *Climate Change 2007* 315-356.

48 Ryan et al 2012 “Perceptions of Sea-Level Rise and Managed Retreat: An Exploratory Survey” 8.

49 Wong et al “Coastal systems and low-lying areas” 367.

threat of accelerated SLR is anticipated to pose the most significant risk to the CZ,⁵⁰ increasing the coast's vulnerability to other hazards.⁵¹ In relation to its ecological impacts, the IPCC suggests that SLR could: increase shoreline erosion; exacerbate coastal flooding; inundate coastal wetlands and other lowlands; increase the salinity of estuaries and aquifers; alter tidal range in rivers and bays; change the locations where rivers deposit sediment; and drown coral reefs.⁵² This will inevitably lead to the irreversible alteration of the land-sea interface.⁵³

Although such long-term predictions are critiqued for being fraught with uncertainties,⁵⁴ the potential impacts of SLR on coastal eco-systems, buildings, infrastructure and livelihoods are sufficiently extensive to infiltrate coastal planning considerations and decisions.⁵⁵ Bijlsma et al⁵⁶ emphasise that, despite not always being the most significant threat to natural coastal systems, when considered in conjunction with other CZ stresses, the potential impacts of climate change can become a serious problem for coastal communities, specifically in those areas where the resilience of natural coastal system has already been reduced. Understandably, climate change experts are stressing the importance of formulating and enforcing coastal protection and adaptation strategies in anticipation of the possible effects that SLR may bring.⁵⁷

2.2 Integrated coastal management

Contemporary recognition of the need for distinctive albeit comprehensive regulation of such diverse interface as the CZ has culminated in the notion of ICM. Although there is no conclusive definition for ICM, it may be described as “a continuous and dynamic process by which decisions are taken for the sustainable use, development, and protection of coastal and marine areas and resources”.⁵⁸ ICM is distinguished from *coastal management* on the basis of the ability of ICM to establish a “governance system capable of managing multiple uses in an integrated way through the cooperation and coordination of government agencies at different

50 Ibid 366.

51 Nicholls et al “Coastal systems in low-lying areas” in *Climate Change 2007* 315-356.

52 Tsyban, Everett & Titus “World ocean and coastal zones” 1.

53 McGuire & Lynch 2013 *Natural Resources & Environment* 28.

54 Ryan et al “Perceptions of Sea-Level Rise and Managed Retreat” 8.

55 McGuire & Lynch 2013 *Natural Resources & Environment* 29; Walsh et al 2004 *JCR* 591.

56 Bijlsma et al “Coastal zones and small islands” 291.

57 EC “The economics of climate change 1.

58 Cicin-Sain & Belfiore 2005 *OCM* 854.

levels of authority, with nongovernmental organizations and among different economic sectors”.⁵⁹ It is therefore a multi-purpose orientated governance approach that is sufficiently flexible to respond to the diversities and interrelationships that characterise the CZ.⁶⁰

The ideals of ICM are to ensure: the sustainability of coastal development; the reduction of the vulnerability of coastal areas and its inhabitants to natural hazards; and the maintenance of crucial ecological processes, biological diversity and natural life support systems.⁶¹ Whereas “unidimensional management gives precedence to the protection of coastal investments at the expense of ecological resilience”,⁶² “the fundamental purpose of all ICM initiatives is to maintain, restore or improve specified qualities of coastal ecosystems and their associated human societies”.⁶³ Whilst many tend to view coastal management as a dispute between economic and ecological considerations,⁶⁴ “a defining feature of ICM is that it addresses the needs for both development and conservation in geographically specific places”.⁶⁵

The application of an integrated approach to coastal management involves a paradigm shift towards a more long-term management vision. It is an approach that involves “the full cycle of coastal management practices”,⁶⁶ utilising a plethora of instruments, including planning frameworks, policy programmes, research, stakeholder input, economic incentives, technological solutions and regulatory measures,⁶⁷ the latter which would include CMLs. With no uniform design to an ICM system, these elements are combined in a context-specific manner, informed by local socio-economic, institutional, geographical and legal conditions. Embedded into this broader governance structure, it must be understood that CMLs will rarely be sufficient to fully address cross-cutting coastal issues. It is, however, by reason of its non-

59 Ibid 849.

60 Ibid 854.

61 Ibid 854.

62 Berry, Fahey & Meyers 2013 *JCR* 899.

63 Olsen 2003 *OCM* 347.

64 Dronkers & de Vries 1999 *J Coast Conserv* 97.

65 Olsen 2003 *OCM* 347; Clark 1997 *OCM* 199.

66 Chevallier “Promoting the Integrated Governance” 7.

67 Ibid.

structural nature an important tool for ICM, often to be preferred above other practical mechanisms for ICM by, as will be discussed below.⁶⁸

2.3 Practical mechanisms for integrated coastal management

Aligned with the international consensus on the need for an integrated approach to coastal management, varied patterns of ICM dissemination developed as part of national strategies working towards counteracting the risks associated with SLR. Cicin-Sain and Belfiore⁶⁹ have recorded the global proliferation of ICM efforts in coastal countries, with approaches noted to be distinct and varied, scoped by the externalities of the particular region.

In 1990 the IPCC had, however, already introduced a coastal development paradigm that categorizes these management mechanisms as one of three basic adaptation strategies: protect, accommodate or retreat (see Annexure A).⁷⁰ Protective strategies are directed at reducing the risks associated with a hazardous event by, for example, raising hard protection measures such as sea-walls or by utilising soft engineering methods such as beach nourishment.⁷¹ Their aim is to ensure the continued use of vulnerable coastal areas.⁷² Accommodation mechanisms are utilised as a means to increase the capacity of coastal communities to manage the effects of a specific event by *inter alia* raising infrastructure and flood proofing.⁷³ These policies therefore attempt to moderate the sensitivity and/or exposure of the CZ to the impacts of SLR-related events.⁷⁴ Retreat programmes seek to reduce the potential effect of an event,⁷⁵ and may involve the relocation of coastal infrastructure⁷⁶ or the isolation of vulnerable areas.

CMLs are classified as an adaptive mechanism for managed or planned retreat, often also referred to as easements, no-build zones or setback lines. Requiring developments to be “set

68 Clark 1997 OCM 197.

69 Cicin-Sain & Belfiore OCM 858.

70 IPCC “Strategies for Adaptation to Sea Level Rise” 1990; Klein et al 2001 JCR 531.

71 Ferreira et al 2006 *Continental Shelf Research* 1030-31.

72 McGuire & Lynch 2013 *Natural Resources & Environment* 28.

73 Ferreira et al 2006 *Continental Shelf Research* 1030-31.

74 Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 410.

75 Ferreira et 2006 *Continental Shelf Research* 1030-31.

76 Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 410.

back” a specific distance from an identified baseline, for example the high-water mark (HWM), CMLs demarcate a buffer zone within which permanent construction is prohibited.⁷⁷ Their general aim is to control “unwise coastal uses”⁷⁸ to ensure public access and the preservation of the ecological integrity and aesthetic value of the CZ whilst curtailing the risks posed to populations and development by erosion, flooding and SLR.⁷⁹

2.4 Comparing coastal management lines with other mechanisms

The hard armouring techniques associated with protective strategies seek to “support human development” over and above ecological stability.⁸⁰ Examples include the use of sea-walls, gate levees, groins, detached breakwaters and floodgates.⁸¹ These man-made barriers are, however, critiqued for their negative impact on natural features of the CZ such as wetlands, shorelines grasses and sand dunes.⁸² Using a seawall to illustrate this point, McGuire and Lynch⁸³ note that once established “the natural transition zones of the coastal area are interrupted. There is no longer a direct connection between the sea and coastal features”. Furthermore, by trapping ecosystems between the sea and armoured constructions, protective actions tend to result in a “coastal squeeze”⁸⁴ – “when an eroding shoreline approaches hard, immobile structures such as seawalls or resistant natural cliffs”.⁸⁵ The squeeze risks the creation of a sediment deficit, which would be detrimental to the natural functioning of coastal ecosystems.⁸⁶ The risk here is one of maladaptation where the vulnerability of the CZ to coastal hazards is increased as opposed to reduced.⁸⁷

77 Sylaios et al 2015 *Coastal Management* 519.

78 Such uses include housing, tourism developments, heavy infrastructure for coastal access or defence, dumping and wastewater discharges (Sanò, Marchand & Medina 2010 *J Coast Conserv* 34).

79 Sylaios et al 2015 *Coastal Management* 519; Rabenold 2013 *Coastal Management* 297.

80 McGuire & Lynch 2013 *Natural Resources & Environment* 28; Van Rijn 2011 *OCM* 876-885.

81 Gilbert & Vellinga “Coastal Zone Management” 149; Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 410; Van Rijn 2011 *OCM* 885.

82 For an overview of hard and soft techniques and the limits of their application see Annexure B.

83 McGuire & Lynch 2013 *Natural Resources & Environment* 30.

84 EC “The economics of climate change” 14.

85 Wong et al “Coastal systems and low-lying areas 375.

86 Ibid.

87 EC “The economics of climate change 14; Klein et al 2001 *JCR* 532.

Softer protective measures, on the other hand, may help preserve the ecological value of these coastal features and associated biota.⁸⁸ Examples of soft protection would include beach nourishment, dune building and wetland restoration and creation.⁸⁹ Soft armour is, however, not a long-term solution. It is somewhat of a quick-fix to sudden, unexpected SLR. It is “not meant to serve as long-term preventative measures to hold back the sea”.⁹⁰ Furthermore, the inability of soft techniques to adequately protect property against the rising tides may influence the ability of property owners to insure against SLR damage or loss.⁹¹ The capability to insure against property damage along coastal areas susceptible to SLR is likely to be affected by the extent to which the potential impacts of SLR are mitigated, in which case hard protective methods could potentially ensure “a greater degree of insurability” over soft armouring techniques.⁹²

Apart from their inherent alteration of the environment,⁹³ protective measures, in the form of both hard and soft structures, also require extensive resources – initial capital investment, operational costs and continuous maintenance costs⁹⁴ making little economic sense. Also problematic is that such costs generally do not account for the non-quantifiable losses such as cultural, environmental and social impacts.⁹⁵

Strategies that seek to accommodate hazardous coastal variability are deemed to be more proactive than protective methods.⁹⁶ Examples of “direct” accommodation would include the improvement of drainage, elevation of buildings on pilings or strict building codes requiring minimum floor elevations and the modification of land existing land uses.⁹⁷ More “indirect” methods would include emergency storm warning and preparedness planning, peremptory hazard insurance for vulnerable areas as well as strict regulation of risk zones.⁹⁸ Although the ecological impacts of these methods are restricted, the economic implications are far less

88 McGuire & Lynch 2013 *Natural Resources & Environment* 30.

89 Gilbert & Vellinga “Coastal Zone Management” 149; Klein et al 2001 *JCR* 533.

90 McGuire & Lynch 2013 *Natural Resources & Environment* 30.

91 Ibid.

92 Ibid.

93 Gilbert & Vellinga “Coastal Zone Management” 150.

94 Van Rijn 2011 *OCM* 885.

95 Gilbert & Vellinga “Coastal Zone Management” 152.

96 McGuire & Lynch 2013 *Natural Resources & Environment* 34.

97 Gilbert & Vellinga “Coastal Zone Management” 147; IPCC “Methodological and Technological Issues” para 15.3.3.

98 Ibid.

favourable. Disaster planning expenditure would be considerable, especially with regards to the predicted increase in hazardous events induced by climate change.⁹⁹ The administrative burdens and delays of “a static mode of planning that is over-reliant on zoning and development approval to effect a desired land use pattern” could also render this response inflexible to an extremely varied, unpredictable context.¹⁰⁰

By reducing society’s vulnerability to coastal hazards, managed retreat options are heralded for their distinct advantages.¹⁰¹ Numerous mechanisms for retreat exist, such as CMLs, relocation of buildings, the creation of upland buffers and rolling easements.¹⁰² As noted, CMLs are considered in this paper given that it is aligned with the ideal of ICM to balance development demands with ecological needs. This is affirmed when looking to the ecological implications of this retreat option — “[t]he general stance on retreat from the shoreline is one that provides an opportunity for coastal landscapes to maintain their features and integrity over time by allowing room for their features to move landward in concert with the extent of sea level rise”.¹⁰³ It is in a sense an ecological barrier that could enhance coastal resilience without the risk of a coastal squeeze. It is also pro-active in that the prevention of development in the CZ could limit future expenditures for adaptation. This would, in turn, in the long term make CMLs less expensive to enforce and maintain than protective and accommodation strategies.¹⁰⁴

Of concern, however, is the implication of CMLs on ownership and other development rights attached to coastal properties lying seaward of a CML. It is anticipated that coastal landowners “will be reluctant to relinquish their land to make way for, or enhance, an ecological barrier, unless they are adequately compensated and feel that the retreat scheme is transparent, fair and just.”¹⁰⁵ The implications hereof are considered more fully below.¹⁰⁶

99 Gilbert & Vellinga “Coastal Zone Management” 151.

100 Abel et al 2011 *Environmental Science & Policy* 284.

101 Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 411.

102 IPCC “Methodological and Technological Issues” para 15.3.3.

103 McGuire & Lynch 2013 *Natural Resources & Environment* 34.

104 FOA “Integrated coastal management law” 176.

105 Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 412.

106 See para 2.5.1.3.

Compared to both protective and accommodation methods, CMLs, as a managed retreat response, are evidently more proactive and focussed on long-term coastal resilience. CMLs reflect the vision of ICM by allowing planners and stakeholders to balance development priorities with the need for natural coastal landscape preservation,¹⁰⁷ thereby ensuring not only the maintenance of biodiversity and ecosystem services, but also the protection of infrastructure and coastal populations.¹⁰⁸ “Policies which ignore the dynamics of coastal states and systems can be catastrophic when the focus is on human activities rather than the systems which sustain them.”¹⁰⁹

Though the different adaptive measures discussed each have the potential to counter CZ depreciation, CMLs are decisively better aligned with ICM. There is a synthesis in the management of both development and natural resources that is more likely to reach and maintain an optimal level of adaptation.¹¹⁰

2.5 Legal elements of a coastal management line regime

As part of a broader ICM system, the legal construct of a CML regime must consist of elements that reflect the integration fundamental to such a holistic, sustainable governance system. The elements are therefore an important yardstick to ICM, indicative of the ability of existing law to achieve the sustainable use, development and protection of coastal areas and resources. To select such elements is, however, inherently complex given the various “dimensions of integration that need to be addressed”.¹¹¹ It is trite that “this kind of planning is different because it presumes a changing landscape resulting from SLR where the extent of the change is unknown”.¹¹²

Olsen describes the evolution of ICM programmes by means of a policy cycle made up of specific steps of institutional endeavour.¹¹³ He summarises the following steps: issue

¹⁰⁷ Sylaios et al 2015 *Coastal Management* 520.

¹⁰⁸ Ibid.

¹⁰⁹ Higgins “Sea Level Rise Impacts” 3.

¹¹⁰ FOA “Integrated management of coastal zones” para 2.8.

¹¹¹ Olsen, Tobey & Kerr 1997 *OCM* 157.

¹¹² McGuire & Lynch 2013 *Natural Resources & Environment* 29.

¹¹³ Olsen 2003 *OCM* 356-357.

identification and assessment, programme preparation, formal adoption and funding, implementation and evaluation.¹¹⁴ Although this cycle applies to the conception of an overarching ICM policy framework, it is submitted that it can be replicated for the design and evaluation of sub-structures of ICM, such as CMLs for example. Given that CMLs are a mechanism for the attainment ICM, its implementation will depend upon the existence of founding facets of an ICM programme.

Using this cycle as a framework, the following part of this chapter sets out legal elements that would theoretically constitute an effective CML regime. This establishes the medium against which the legal systems from the selected countries will be evaluated. The list of elements is, however, not exhaustive and must remain open to modification as it presumes a changing landscape to where problems and opportunities must be identified on a proactive basis.¹¹⁵ It must be noted, however, that since the dissertation concerns itself primarily with the legal elements of a CML matrix, the phase of formal adoption and funding will not be addressed. Though the rollout of CMLs, as with any other adaptive response, is highly dependent upon funding and capacity training,¹¹⁶ any discussion on formal adoption would be too broad as it would have to address every country's legislative process in general, as opposed to the design of a CML regime in particular. Furthermore, budgetary decisions or funding is a technical element subject to the discretion of the executive arm of government, influenced by factors that extend beyond the scope of a CML system.

2.5.1 Issue identification & assessment

2.5.1.1 Assessment & data collection

As CMLs seek to guide the direction and extent of the development trajectory within the CZ, successful planning is reliant on the collection of the best available information.¹¹⁷ Adequate

¹¹⁴ Olsen, Tobey & Kerr 1997 *OCM* 161.

¹¹⁵ *Ibid* 160.

¹¹⁶ *Ibid* 166.

¹¹⁷ Klein et al 2001 *JCR* 533-4.

and accurate multi-sector data collection and information is fundamental to the identification of needs, priorities and uncertainties of stressed coastal areas.¹¹⁸ As held by Klein et al:¹¹⁹

The more relevant, accurate and up-to-date the data and information available to the coastal manager, the more targeted and effective adaptation strategies can be. Coastal adaptation requires data and information on coastal characteristics and dynamics, patterns of human behaviour as well as an understanding of the potential consequences of climate change.

Based on modern principles of planning and resource management and interdisciplinary processes,¹²⁰ ICM systems generally incorporate technologies to develop intensive information bases for adaptation strategies such as CMLs.¹²¹ A calibrated CML regime would therefore mandate reliance on scientifically sound spatial information prior to its demarcation and implementation. To otherwise apply CMLs in any sort of vacuum, absent a holistic vision of the CZ environment, would jeopardise their pragmatic worth as a tactical, pro-active and managed retreat response to the idiosyncrasies of diverse dissipating coastlines.

2.5.1.2 Public participation

An integrated approach implies that coastal management research cannot be limited to the assessment of coastal environmental dynamics and collated data.¹²² Owing to the CZ's common treatment as a shared resource,¹²³ a CML regime must also be predicated upon an inclusionary approach whereby participation processes allow public concerns to influence programme development and decision-making.¹²⁴ Public participation has been identified as the "cornerstone" to an "inclusive/deliberative approach to planning and governance that places stakeholders' knowledge, opinions and aspirations at the centre of decision-making, as

¹¹⁸ Klein et al 2001 *JCR* 534-5; Malvárez 2015 *J Coast Conserv* 634.

¹¹⁹ Klein et al 2001 *JCR* 534-5.

¹²⁰ FOA "Integrated management of coastal zones" para 2.2.

¹²¹ Ibid.

¹²² Dronkers & de Vries 1999 *J Coast Conserv* 97.

¹²³ Frost 2009 *OCM* 299.

¹²⁴ Olsen, Tobey & Kerr 1994 *OCM* 158.

opposed to a managerialist (technical-rational) approach in which professional expertise and bureaucratic control shape policy and practice”.¹²⁵

Also, adaptive coastal actions such as CMLs are non-global in scale, typically influenced by context and place.¹²⁶ As such, the ramifications of adaptive actions are commonly shared by a relatively delimited set of stakeholders with close ties to the local setting. To establish their priorities, policy makers should be engaged with their views to ensure a CMLs strategy matches their needs wherever possible.¹²⁷ Albeit time-consuming and costly,¹²⁸ it is important for policy makers to appreciate the concerns that emanate at a community level to contextualise the specific adaptation strategy and bolster public acceptance thereof.¹²⁹ The ability of the public to influence design will “give the community a greater sense of ownership”¹³⁰ to the extent that the CML policy has both ethical and practical value.¹³¹ In sum:

Projects of public interest and areas with particular geographical or other local constraints, especially related to population density or societal needs, should be considered at this phase. The outcome of this participatory process should be used to make a final decision on a setback line being scientifically valid, socioeconomically defensible, and broadly acceptable to the public.¹³²

2.5.1.3 *Impact on existing rights*

To employ CMLs as a limit to coastal development will have ramifications on existing rights, specifically the rights of owners of private land abutting the CZ where infrastructure or development rights already exist.¹³³ The possibility that ownership will have to be “forfeited” “several years before their property will be inundated by rising seas” is considered as a major drawback of CML strategies.¹³⁴ A CML regime must thus be developed with the foresight to

¹²⁵ Few, Brown & Tompkins 2007 *Climate Policy* 48.

¹²⁶ Ibid 47.

¹²⁷ Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 413.

¹²⁸ Ibid.

¹²⁹ IPCC “Methodological and Technological Issues” para 15.3.2.

¹³⁰ Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 413.

¹³¹ Few, Brown & Tompkins 2007 *Climate Policy* 47.

¹³² Sylaois et al 2015 *Coastal Management* 534-535.

¹³³ Doukakis “The Dilemma of the Illegibility of State Visions” 5.

¹³⁴ Alexander, Ryan & Measham 2012 *Journal of Environmental Planning and Management* 412.

manage rights' conflicts as to reconcile the interests of the individual landowner with the public's interest to have the CZ conserved.¹³⁵

Apart from ownership or development rights, the CZ ought to be managed to maintain equitable public use and access rights. Roman law's recognition of the coast as *res omnium communes* underpins a number of modern legal concepts that seek to ground the public's right to use and access of this area — for example public domain, coastal public property (CPP) and public trust. However, the “public's right to use the coast may be virtually meaningless if physical access to the coast itself is restricted”.¹³⁶ By controlling the coastal development footprint, a CML matrix is generally heavily influenced by these modern notions of *res omnium communes*, working in favour of securing public access.¹³⁷ Where CMLs are imposed, explicit recognition of the public status of the CZ could assist to refute claims of arbitrariness and better justify the limitation of private rights.

2.5.2 Programme preparation

2.5.2.1 Definitions & boundaries

Concrete, spatial boundaries predicate the “basic implementation locus” of any ICM policy or programme.¹³⁸ Effective ICM “requires that the problem being addressed can be defined within appropriate geographic boundaries that contain both causes and effects”.¹³⁹ However, due to the dynamic nature of the coast and the overlap between the terrestrial and marine environment,¹⁴⁰ what constitutes this area may not always be easy to conceptualise.¹⁴¹ Generally, there is no single definition for, or delineation of, the CZ.¹⁴² Coastal boundaries may furthermore shift in accordance with the perspective from which they are perceived¹⁴³ – as a geographic area, an economic activity zone, a socio-cultural entity or an administrative

135 Horne 1969 *William & Mary Law Review* 740.

136 FOA “Integrated coastal management law” 193.

137 Sylaios et al 2015 *Coastal Management* 519.

138 Balaguer et al 2008 *OCM* 806.

139 Ibid.

140 Sylaios et al 2015 *Coastal Management* 520.

141 Frost 2009 *OCM* 300.

142 Wong et al “Coastal systems and low-lying areas” 366.

143 FOA “Integrated coastal management law” 84.

institutional entity.¹⁴⁴ “In each dimension the boundaries may be different, in so far as boundaries can be defined at all.”¹⁴⁵ From the viewpoint of a planner or regulator, there must however be “certainty as to the exactly where the border of the coastal area is, since the boundary defines the limits within which certain rules and requirements apply”.¹⁴⁶

To define the boundaries of the CZ is of particular importance for the demarcation of the CMLs. Bridge and Salmon¹⁴⁷ explain that the conception of CMLs is dependent upon the delineations of the CZ as a baseline,¹⁴⁸ noting that “the lack of clear definitions, or reliable delineations, of elements of the (CZ)...in turn affects the reliability and validity of applying rigidly defined [CMLs]”. Ideally then the boundaries should therefore extend as far seaward and as far landward as necessary to achieve the purpose of CMLs,¹⁴⁹ without being so extensive as to impose “unreasonable restrictions” on existing uses in or adjacent to the CZ area.¹⁵⁰

Apart from setting the spatial locus within which CMLs are to operate, the law’s approach in defining a CML itself could also affect the practical efficacy of the mechanism. CMLs are generally defined in terms of a fixed distance extending landward of a baseline, such as the HWM or the shoreline, creating what is termed a no-build or exclusion zone. This approach is critiqued for its rigid nature that is both incapable of responding to the dynamics of coastal change and irreconcilable with existing development.¹⁵¹ Preferably, a flexible approach ought to influence CML delineation, compatible with the physical nature of the coast as well as the existing urban footprint.¹⁵² This requires CMLs to be defined in terms of the local erosion rate¹⁵³ or a variable baseline, extending only so far inland as existing, legally constructed infrastructure or cultural uses allow.¹⁵⁴

144 Dronkers & de Vries 1999 *J Coast Conserv* 97.

145 Ibid.

146 FOA “Integrated coastal management law” 84.

147 Bridge & Salman 2010 “Policy Instruments for ICZM” 41.

148 Sylaois et al 2015 *Coastal Management* 520.

149 Fabbri 1998 *OCM* 51-52; Clark 1997 *OCM* 195.

150 FOA “Integrated coastal management law” 190.

151 Sylaois et al 2015 *Coastal Management* 534.

152 Sanò, Marchand & Medina 2010 *J Coast Conserv* 36.

153 Rabenold 2013 *Coastal Management* 296.

154 Doukakis “The Dillema of the Illegibility of State Visions” 5.

2.5.2.2 Institutional or administrative arrangements

Central to ICM is the design of cooperative and coordinated government agencies at different levels of authority that could “overcome the fragmentation inherent in the sectorial management approach and in the splits in jurisdiction between levels of government at the land-water interface”.¹⁵⁵ The design of the institutional structure should divide authority and resources among different tiers of government in accordance with their capacity, competencies and jurisdiction.¹⁵⁶ Abel et al¹⁵⁷ deem the devolution of authority essential to buffer local CML strategies against pro-development sentiments from higher levels of government. However, they also concede that regulation by national government remains essential to retain coherence in management along the coast – “the spatial scale of erosion and sedimentation processes demand this, for action in any local government area has consequences elsewhere”.¹⁵⁸ Thus national and local should be work separately, but with strong linkages – the ‘two-track’ approach.¹⁵⁹ Ideally CMLs, as an ICM programme, should therefore “operate within a closely integrated, coherent management framework within a defined geographical limit”.¹⁶⁰

A co-operative model that relocates power and responsibility among the tiers or spheres government may in itself, however, be insufficient.¹⁶¹ Further division of competencies should preferably, in accordance with the principle of subsidiary, ensue with the establishment of multi-sectoral agencies or bodies most closely connected to the area or resource concerned. Important in this regard would be the clear and well-defined allocation of sufficient authority and resources to ensure effective functioning and implementation.¹⁶²

155 Cicin-Sain & Belfiore 2005 *OCM* 856-857.

156 Abel et al 2011 *Environmental Science & Policy* 283.

157 Ibid.

158 Ibid.

159 Olsen, Tobey & Kerr 1993 *OCM* 158.

160 Cicin-Sain & Belfiore 2005 *OCM* 854.

161 Olsen, Tobey & Kerr 1993 *OCM* 158.

162 Olsen 2003 *OCM* 352.

2.5.3 Implementation & evaluation

2.5.3.1 Instruments for implementation

In coastal management, there is a “fundamental concern in the relationship between intended policy aims and actual outcomes”.¹⁶³ For CMLs to become operative and factually direct development activities within the CZ, legal tools or mechanisms are necessary to “complete the loop between planning and implementation”.¹⁶⁴ Given that CMLs seek to regulate and respond to spatial variability in the CZ, this could be achieved by incorporating CMLs into land-use planning frameworks, spatial plans or zoning schemes,¹⁶⁵ mandating their consideration in land-use planning and management decisions.

Given the overlap in their aim to control, restrict or exclude undesirable infrastructural developments, CMLs could also be assimilated with environmental authorisation (EA) systems by either triggering the need for an environmental impact assessment (EIA) or constraining the discretion of the decision-maker to grant an EA seaward of the CML. “Permits, consents, concessions, licensing, authorizations, environmental clearance, and similar procedures are all examples of the use of this tool.”¹⁶⁶

Ideally, ICM envisions the integration of both these tools with CZ resource management to guarantee that CMLs are implemented with “great expediency and through streamlined and effective process”.¹⁶⁷

2.5.3.2 Monitoring & evaluation

As an ICM initiative, CMLs should preferably be adaptive to incorporate uncertainty and remain sustainable over an extended period of time.¹⁶⁸ Spatial variability in the CZ, however, makes it

¹⁶³ House 2010 *J Coast Conserv* 274.

¹⁶⁴ Olsen, Tobey & Kerr 1997 *OCM*.

¹⁶⁵ FOA “Integrated coastal management law” 176.

¹⁶⁶ Ibid 194.

¹⁶⁷ Overberg 2015 *Report* 24.

¹⁶⁸ Olsen 2003 *OCM* 348; Douvere & Ehler 2011 *J Coast Conserv* 307.

impossible to, from the outset, accurately predict the efficiency of CMLs or their capacity to remain effective in perpetuity – “ICM does not offer a blueprint that merely needs to be applied and will then produce known results”.¹⁶⁹ Monitoring and evaluation are thus essential to assess the impact or demonstrate the progress of CML utilization and detect any discrepancy between expected and effective coastline responses.¹⁷⁰ Any such review grants insight into “sources of coastal change in a given place”,¹⁷¹ informing future actions and allowing decision-makers to adapt accordingly. Pre-set indicators¹⁷² are preferable in this context, as they would formalise progress benchmarks and guarantee a platform for review,¹⁷³ thereby tracking implementation.¹⁷⁴ Given the convergence of multiple natural and anthropogenic pressures that could prejudice progress, the three main types of indicators instrumental to ICM are recommended: indicators measuring the environmental status of the CZ; indicators measuring anthropogenic stresses exerted over the CZ; and indicators to assess the efficacy of CMLs as a coastal management effort.¹⁷⁵

3 THE EXPERIENCE OF EU-MED COUNTRIES

3.1 Overview of coastal complexities

In 2002, the General Directorate Environment of the European Commission initiated the Eurosion¹⁷⁶ project to examine the vulnerability of the EU's coastline to the increasing problem of coastal erosion. Upon its conclusion in 2004, the project concluded that 30% of the 15km² of land lost or impacted by erosion occurred within the Mediterranean Sea, making it one of three “critical erosion hot-spots”.¹⁷⁷ CZ dissipation in the Mediterranean is a predicament exacerbated by the convergence of multi-secular natural and human-induced factors.¹⁷⁸

¹⁶⁹ Olsen, Tobey & Kerr 158.

¹⁷⁰ Henocque 2003 OCM 364.

¹⁷¹ Ibid.

¹⁷² A progress indicator “provides a simplified view of a more complex phenomenon or provides insights about a trend or event that cannot be directly observed. Indicators are commonly used as management tools to define the nature and size of problems, set goals for their solution and track progress towards goals” (Pickaver, Gilbert & Breton 2004 OCM 452).

¹⁷³ Henocque 2003 OCM 364.

¹⁷⁴ Frost 2009 OCM 300.

¹⁷⁵ Belfiore 2003 OCM 229.

¹⁷⁶ EC “Eurosion: A guide to coastal erosion management practices in Europe” (Eurosion).

¹⁷⁷ EC “The economics of climate change” 7.

¹⁷⁸ Eurosion 6.

Amongst others, SLR is identified as a significant driver of erosion in all regional seas, including the Mediterranean.¹⁷⁹ This is particularly problematic for the intertidal habitats and ecosystems in the area given their low tidal range and restricted scope for on-shore migration.¹⁸⁰ Noteworthy is Eurosion's reference to hard protective structures as a human-induced factor that intensifies the scale and rate at which coastal erosion ensues.¹⁸¹

Climate change threatens to further aggravate the stresses borne by these coastal areas, with the Mediterranean Basin identified as one of the European regions most susceptible to its impacts.¹⁸² Given the density of the population and infrastructure, extreme climate events are anticipated to impose onerous economic and social burdens on affected areas.¹⁸³ Moreover, given the causality that subsists between SLR and climate change, the latter is predicated to increase the rates and severity of the existing coastal erosion conundrum.

All of these risks are further exacerbated by the "gradual increase of human pressures exerted on the Mediterranean [CZ]".¹⁸⁴ The annual growth of population numbers and the influx in tourism increase the rate of concretion of the Mediterranean coast by the expansion of roads, ports, tourist attractions and facilitates and urban sprawl.¹⁸⁵ Many of these areas are, however, dependent on the maintenance of the tourism industry,¹⁸⁶ compelling building and real estate development along the coastline.¹⁸⁷

All of these complexities may be observed at varying scales and intensities along the respective coastlines of France, Spain and Greece. France, for example, is recorded as having one of the most rapid rates of coastal development, where the expanse of "built-up areas in the first kilometre coastal strip exceeds 45%".¹⁸⁸ In the south-east of mainland France, the region

179 See Georgas "Assessment of Climate Change Impacts on Coastal Zones" 1-13.

180 EC "The economics of climate change" 8.

181 Eurosion 8.

182 EC "White Paper: Adapting to Climate Change" 4; see Lejeusne et al 2010 *Trends in Ecology & Evolution* 250-260.

183 EC "White Paper Adapting to Climate Change" 4.

184 Sylaios et al 2015 *Coastal Management* 520.

185 Sylaios et al 2015 *Coastal Management* 520; Alpan 2011 *Journal of Environmental Management* 2961-2971.

186 Sardá et al 2015 *OCM* 2.

187 De Vivero & Mateos 2005 *Coastal Management* 202.

188 Anfuso, Martínez-del-Pozo & Rengel-Buitrago "Bad Practice in Erosion Management" in *Pitfalls of Shoreline Stabilization* 216.

of Languedoc-Roussillon borders the Mediterranean Sea¹⁸⁹ and is deemed as one of the most sensitive coastal regions with more than 87% of its shoreline exposed to erosion and flooding.¹⁹⁰ Extending over 220 kilometres,¹⁹¹ its coast is recognised for its precious ecological resources and sandy beaches¹⁹² that easily attract the anthropogenic pressures associated with growing concentrations of people and economic activities.¹⁹³ Studies on the potential effects of SLR on some of the beaches in this region warn of the decrease in the width of beaches and the potential socio-economic impacts thereof.¹⁹⁴ There are reports on the use of hard defensive structures by resorts on the Languedoc coast that have resulted in sediment loss and dissipating beaches.¹⁹⁵

Spain consists of 17 regions of which 10 are located along the coast, with Andalusia, Murcia, Valencia, Catalonia and the Cities of Ceuta and Melilla bordering the Mediterranean Sea.¹⁹⁶ Despite being greatly valued for its ecological, social, economic and cultural significance,¹⁹⁷ the Spanish CZ and its ecosystems face numerous natural and human-induced threats. Although the risks of flooding and erosion vary across the coastal regions,¹⁹⁸ all of the regions are noted as having an overall high vulnerability to such events. In aggravation hereof, the pace and expanse of development along the coastline is extensive,¹⁹⁹ which is mostly attributable to a high coastal population density and the “significant flow of tourists”²⁰⁰ to the sand and sand destinations of Mediterranean Spain.²⁰¹ The increased rate of urbanization aimed at matching the population and tourism demands is critiqued for its short-term economic vision, lack of integration and high environmental costs.²⁰² Pressured by a range of ensuing environmental

189 See Annexure C.

190 EC “The economics of climate change: France” 2; Deboudt 2010 *OCM* 376.

191 Cadoret 2009 *J Coast Conserv* 152.

192 FOA “Integrated coastal management law” 129.

193 Deboudt 2010 *OCM* 366.

194 Brunel & Sabatier 2009 *Geomorphology* 47-57; Paskoff 2004 *JCR* 428.

195 Paskoff 2004 *JCR* 431.

196 See Annexure D.

197 Sanò et al 2010 *Coastal Management* 78.

198 EC “The economics of climate change: Spain” 6.

199 Anfuso, Martínex-del-Pozo & Rengel-Buitrago “Bad Practice in Erosion Management” in *Pitfalls of Shoreline Stabilization* 216.

200 Ibid.

201 EC “The economics of climate change: Spain” 19; Sanò et al 2010 *Coastal Management* 78.

202 Sanò et al 2010 *Coastal Management* 80; De Vivero & Mateos 2005 *Coastal Management* 201.

problems, the proper management of this zone has become central to management conservation agendas.²⁰³

The coastline of Greece is the most extensive of all the Mediterranean countries, stretching over 13 780km inclusive of its many islands. Twelve of its thirteen coastal regions border the Mediterranean Sea,²⁰⁴ but are not particularly prone to high erosion rates given that approximately 70% of the coastline is predominantly rocky coast.²⁰⁵ Those areas that constitute “soft” parts such as sandy beaches and dunes are, however, experiencing high rates of erosion.²⁰⁶ Given the moderate tidal ranges in the coastal area, the threats of SLR as well as flooding remain relatively low.²⁰⁷ Nonetheless, this does not negate the potential of climate change to cause a surge in erosion and flooding in the future,²⁰⁸ particularly in light of the high pressures the CZ is forced to absorb from large-scale socio-economic development – “infrastructure (harbours, ports, marinas), fisheries, aquaculture activities and agriculture”.²⁰⁹ Greece’s CZ has experienced a significant increase in population and an “expansion and diversification in their economic base”,²¹⁰ all of which risks the deterioration of coastal resources and loss of coastal ecosystems.²¹¹ Similar as with France and Spain, the constant increase in tourism is “accommodated in construction which tends to be uncontrolled”.²¹² Illegal constructions in the CZ are identified as the most “visible factor...leading to environmental degradation”.²¹³

Albeit in different ratios and intensities, across the Mediterranean and along the coasts of France, Spain and Greece the need for an adaptive and integrated, long-term spatial planning instrument is evident.²¹⁴ To opt for protective coastal measures will therefore not serve to meet an ideal and requisite level of adaptation. It is understandable then that nearly “all EU coastal members states (including France, Spain and Greece) have defined a specific coastal set-back

203 EC “The economics of climate change: Spain” 6.

204 See Annexure E.

205 EC “The economics of climate change: Greece” 2.

206 Ibid.

207 Ibid.

208 Doukakis “The Dilemma of the Illegibility of State Visions” 3.

209 Lalenis “Coastline preservation in Greece” 2.

210 Doukakis “The Dilemma of the Illegibility of State Visions” 4.

211 Ibid 4.

212 Lalenis “Coastline preservation in Greece” 14.

213 Ibid 15.

214 EC “White Paper Adapting to Climate Change” 4.

zone ranging on average between 100 and 300m”.²¹⁵ The challenge, however, remains for policy- and decision-makers to ensure that the provision for CMLs is practically efficient in the sense that it incorporates the identified legal elements basic to a CML regime. The dissertation now turns to an assessment of this nature, which shall in turn be used to critically review the South African CML regime in part 4.

3.2 Domestic legal frameworks of selected EU-Med countries

3.2.1 France

3.2.1.1 Planning & policy

At the time of writing, there exists no national planning strategy for the management of the French CZ. However, France’s 1986 Coastal Law – the *Loi Littoral* – seeks to introduce ICM at a national level through an “extended land-use planning approach” that is “characterized by attempts to modify terrestrial planning techniques to achieve more integrated management of coastal areas”.²¹⁶ Planning restrictions set by the statute thus filter down into regional or local planning instruments, establishing a uniform and shared vision of CZ management.

As noted, the region of Languedoc-Roussillon is that part of the French mainland that forms part of the Mediterranean Basin. In 1972, a regional zoning plan – the *Schéma Directeur d’Aménagement du Littoral* (SDAL) – was enacted for the region, replacing the 1964 *Plan d’Urbanisme d’Intérêt Régional*.²¹⁷ Under the SDAL, the areas of Languedoc-Roussillon are categorised into particular zones – growth areas, forestry zones, protected natural areas, protected tourist areas and infrastructural areas. This establishes a basis for a more integrated planning tactic in the region given that the relevant regional territorial authority – the *département de l’Hérault* – may, under the auspices of the SDAL, establish a policy for the governance of areas within these zones.²¹⁸

²¹⁵ EC “The economics of climate change” 48.

²¹⁶ FOA “Integrated coastal management law” 110.

²¹⁷ Ibid 130.

²¹⁸ Ibid 131.

On a local level, each of the *Communes*²¹⁹ is, in terms of the 1983 *Loi Deferre* (Law of Decentralization), responsible for the preparation of local land use or zoning plans. Initially, a land use plan was prepared under the 1967 *Loi d’Orientation Foncière* (Land Orientation Act) as a *Plan d’Occupation du Sol* (POS) and set out the areas to be conserved for their natural properties.²²⁰ A POS retains its legal validity unless it has been transformed under the 2000 *Loi relative à la solidarité et au renouvellement urbains* into a *Plan Local d’Urbanisme* (PLU). These land use plans, be it an old POS or a transformed PLU, regulate the granting of land use authorisations and must comply with national principles set under the *Loi Littoral*, which include *inter alia* the control of urban expansion and the limitation thereof in zones close to shore. The 100m CML set by the *Loi Littoral* as discussed below trumps in any event.²²¹

As an ICM initiative, to combat natural coastal hazards in general and flooding in particular, Predictable Natural Risk Prevention Plans (PNRPPs) were established under the 1995 Barnier Law and are to be attached to PLUs. The PNRPPs are planning documents that create three zones for urban coastal territories to regulate construction and land use within such zones. Within one of the zones, construction is prohibited.²²² PNRPPs are considered to be the “main tool for preventing natural risks” and “amount to a public utility easement”.²²³ As part of the PLU, it is accepted that these plans are also subject to the *Loi Littoral* and its 100m coastal CML.

3.2.1.2 Regulation

Following the publication of the Rapport Piquard: *Perspectives pour l’aménagement du littoral français*²²⁴ in 1974 and the consequent establishment of the *Conservatoire de l’Espace Littoral et des Rivages Lacustres* (CELRL), the French legislature enacted the *Loi Littoral* on 3 January 1986 for the furtherance of coastal management, protection and planning.²²⁵ The law applies to

219 See para 3.2.1.3.

220 Muer-Férec 1997 *J Coast Conserv* 127.

221 FOA “Integrated coastal management law”¹²⁴.

222 Deboudt 2010 *OCM* 371.

223 Ibid.

224 The document was prepared in 1973 as the first document to properly lay the foundations for future coastal planning and took cognisance of the pressures that were being exerted on the natural environment of the CZ by economic practices and rising urbanisation (Muer-Férec 1997 *J Coast Conserv* 123).

225 Ibid.

the “coast”, which it indirectly defines as “a geographic entity which calls for specific zoning and land-use, protection and development policies”.²²⁶ However, it fails to set geographic gauges by which to properly determine the “coast”, leaving the physical scope of application of the statute unclear.²²⁷

Central to the statute is the regulation and limitation of development and related activities within the CZ. Aimed at the reconciliation of conservation and other coastal interests,²²⁸ the *Loi Littoral* imposes a 100m CML from the landward limit of the shoreline or the HWM of the internal waters creating the *bande littorale non constructible*.²²⁹ Article 26 of the *Loi Littoral* sets out the procedural requirements that must be met for the proper delimitation of a CML baseline – the shoreline or HWM. Based on scientific data, the State sets the shoreline or HWM limit, which decision must then be open for scrutiny by relevant stakeholders under a public inquiry.²³⁰ Under the 2004-309 Decree of March 29th 2004, the State must also consider “topographical, metrological, tidal, wave field data, as well as sedimentary, botanic, zoological or historical data”.²³¹

Once demarcated, the CMLs effectively create a 100m “exclusion zone” – the *bande littorale non constructible*) – within which the construction infrastructure or similar activities²³² is prohibited, subject to certain exceptions.²³³ A *Commune* may extend such zone to over a 100m in its POS or PLU if warranted by the sensitivity of the coastal environment or erosion.²³⁴ Affected landowners must be given notice of their right to recourse effective for a period of 10

226 A 1 *Loi Littoral*; FOA “Integrated coastal management law” 87.

227 FOA “Integrated coastal management law” 87.

228 Muer-Férec 1997 *J Coast Conserv* 123.

229 A 146-4, III of the *Code de l’urbanisme*, introduced by article 3 of the *Loi Littoral*; FOA “Integrated coastal management law” 179.

230 A 26 *Loi Littoral*; FOA “Integrated coastal management law” 179-180.

231 Pehlivanoglou, Rappou & Martsoukou 2006 *Mediterranean Marine Science* 16.

232 For example filling wetlands, making artificial rocks, filling ditches (FOA “Integrated coastal management law” 180).

233 A 146-8 of *Code de l’urbanisme* as read with A 3 of *Loi Littoral* exempt buildings and facilities required for public service or economic enterprise which must be located within close proximity to the water; or works for the security of maritime space and air space, as well as the national defence, public or harbour services other than marinas, which must be located within this exclusion zone.

234 FOA “Integrated coastal management law” 181.

years.²³⁵ Such notice appears to suffice as “the French system places capital emphasis on land acquisition”²³⁶ for the purposes of coastal conservation.

Noteworthy is that, subject to a public utility declaration, coastal defence works are included as an exception to prohibited construction in the exclusion zone. The CELRL, nevertheless, as a general rule “follows a non-resistance policy to sea erosion and inundation, refusing to undertake heavy defence works in accordance with [its] goal of conservation of natural sites and ecological equilibrium”.²³⁷

To protect public access in the CZ, the exclusion zone is not to influence the accessibility of beaches, which are, as part of the *domaine public maritime*, declared as “freely accessible”.²³⁸ Subject to a public inquiry, beach concessions may be issued and renewed under article 30 of the *Loi Littoral*, whereby a strip of significant width along the sea is to sustain public access.²³⁹

3.2.1.3 Institutions & governance

At a national level, the State has the authority to promulgate laws to regulate the conservation of the CZ. To ensure the proper implementation of such laws, the State functions through the agency of a number of ministries, with one such agency being the Ministry of the Environment, to whom, in so far as it related to coastal protection, the CELRL is closely affiliated.²⁴⁰ As noted, following the publication of the Rapport Piquard, the CELRL was founded in 1975 as the public administrative body empowered to oversee the protection and conservation of the CZ, “with the remit to acquire and restore threatened natural areas on the coast”.²⁴¹ Its establishment is marked as a “significant turning point in the history of French coastal sites”.²⁴²

235 A 26 & 27 of *Loi Littoral*; FOA “Integrated coastal management law” 180.

236 Muer-Férec 1997 *J Coast Conserv* 127.

237 Paskoff 2004 *JCR* 432.

238 FOA “Integrated coastal management law” 180.

239 Ibid.

240 Muer-Férec 1997 *J Coast Conserv* 124.

241 EC “The economics of climate change” 49; see also Muer-Férec 1997 *J Coast Conserv* 123.

242 Ibid.

As a specialized body, it has both financial and administrative autonomy, “both of which are guaranteed by state subvention”.²⁴³

Although the CELRL is tasked by the State to “conserve, rehabilitate and open to the public the most significant coastal sites”,²⁴⁴ it functions in collaboration with local authorities and other specialised agencies such as public agencies or nature conservation groups.²⁴⁵ It is at the local level where the management of coastal areas is, in theory, well-coordinated, functioning at three territorial levels: the *Région*, the *Département* and the *Commune*. The *Région* is the purveyor of coastal conservation grants and is authorised to make determinations on the CELRL’s policy.²⁴⁶ Acting in close coalition with the CELRL are the different coastal *Départementes*, which safeguard the natural aesthetics of the CZ through acquisition, management and upkeep.²⁴⁷ The *Communes*²⁴⁸ maintain the coastal sites that have been acquired by the CELRL and the *Départementes*, but their authority is regulated and restricted by the *Loi Littoral*.

Significant (and rather controversial) is the CELRL’s power of acquisition over the coastal areas it seeks to protect. The CELRL acquires ownership of private coastal properties in need of protection by private purchase agreement, compulsory expropriation or right of pre-emption.²⁴⁹ Once land has been so acquired, the CELRL becomes the owner in title and the land in question becomes immune to alienation.²⁵⁰ Given the overlap between the functions of the CELRL and the *Départementes*, it is common practice for these bodies to agree on a “programme of coordinated acquisition” where sites of national or regional interest are acquired by the CELRL, whilst the *Départementes* takes those sites that are of local importance.²⁵¹

243 Ibid 124.

244 Ibid 124.

245 Ibid 124.

246 Ibid 126.

247 Ibid 126, 128-129.

248 FOA “Integrated coastal management law” 122.

249 Ibid 164.

250 Ibid.

251 Muer-Férec 1997 *J Coast Conserv* 129.

3.2.2 Spain

3.2.2.1 Planning & policy

Spatial planning in Spain pivots on the 1978 *Constitución Española* (Spanish Constitution), which “tends to lean towards decentralization and distributing powers between regions (basic spatial planning guidelines) and municipalities (physical municipal planning)”,²⁵² and the Land Law 8/2007. The Spanish Constitution endows the Autonomous Communities (ACs)²⁵³ with the competence to legislate on and regulate land use planning within its region.²⁵⁴ Each AC, including those situated adjacent to the Mediterranean Basin, has promulgated its own Spatial Planning Law that designates the content and adoption procedure for regional plans (Directives), sub-regional spatial management plans and specific sectoral plans.²⁵⁵ The Directives “provide a physical reference framework for the socioeconomic activities with which they are related in order to achieve a regional balance and the relational use of the territory and its natural resources”.²⁵⁶ The sub-regional plans hone in on specific territorial spaces, such as the CZ,²⁵⁷ and are thereby not bound to administrative boundaries. Relevant to the CZ, the sectoral plans find application through the AC’s coastal spatial planning plans, which lay down principles and criteria by which to manage uses along the CZ.²⁵⁸ Importantly, the Directives and sub-regional plans are deemed to be “guidelines” since physical urban planning and zoning happens at a local level, where municipalities are responsible for regulation of land use through the development of General Development Plans (GDP). The sectoral plans are, however, binding on all GDPs as well as “any other public decision that affects the coast”.²⁵⁹

There is no national spatial plan that covers the entire Spanish CZ,²⁶⁰ but similar to France, the 1988 *Ley de Costas* (LDC) imposes restrictions on the use and development of the CZ that is to influence spatial planning on regional and local levels. This is mainly achieved through the exclusion of the Martine Terrestrial Public Domain (MTPD) from development and private

252 González Pérez 2007 *European Planning Studies* 30.

253 See para 3.2.2.4.

254 A 148.1.3 of the 1978 Spanish Constitution.

255 De Vivero “Report on Spatial Planning Systems” 6.

256 Ibid 8.

257 Ibid 8.

258 Ibid 30.

259 Ibid 30.

260 Ibid 38.

ownership as well as the imposition of a number of restrictive usage zones by the establishment of CMLs. The statute is, however, critiqued for its lack of mechanisms by which “true” ICM can be developed,²⁶¹ causing the “process of degradation” to continue “due to the many pressures and converging interests”.²⁶² Consequent hereto and prompted by the requirements of the EC’s Recommendation 2002/413/EC, Strategy for Coastal Sustainability (SCS) was launched in 2005 “as a national-scale initiative intended to address coastal issue based on a detailed diagnosis and on the identification of strategic interventions at the local level, under the principles of [ICM]”.²⁶³ The development of the SCS divided into four main stages: stakeholder identification and engagement; the development of a national Strategic Framework for ICZM; the conclusion of ICZM agreements between central government and the ACs; and the Technical Diagnosis. The SCS was, however, never formally adopted and it is not evident whether it influenced the 2013 reform of the *LDC* as discussed below.

Feeding into the SCS is an “advanced” and “dedicated” CZ vulnerability methodology developed under the authority of the climate change office of the Spanish Ministry of the Environment. The methodology is used to facilitate coastal adaptation by determining the vulnerability of coastal areas and stability of coastal infrastructure, harbours and beaches.²⁶⁴

3.2.2.2 Regulation

Under the auspices of the 1978 Spanish Constitution, the *LDC* was developed to limit private property rights to ensure the protection of the CZ.²⁶⁵ This statute represents the “highest level guidance for land planning along the coast”,²⁶⁶ and principally seeks to attain two main objectives: “to guarantee the domain’s public status and to conserve its natural characteristics,

²⁶¹ Ibid 26.

²⁶² Spanish Ministry of the Environment “Integrated coastal zone management in Spain” (Spanish ICZM Report) 50.

²⁶³ Sanò et al 2010 *Coastal Management* 77.

²⁶⁴ EC “The economics of climate change” 36.

²⁶⁵ Sardá et al 2015 *OCM* 2-3; Negro et al 2014 *JCR* 448.

²⁶⁶ Malvárez “The History of Shoreline” in *Pitfalls of Shoreline Stabilization* 238.

reconciling the requirements of development with the imperatives of protection and derogating any regulations which may stand in opposition to this aim”.²⁶⁷

Recognizing the growing process of privatization and correlated depreciation,²⁶⁸ the LDC identifies the entire CZ as public land, obligating public access to the *Domino Publico Maritimo Terrestre* – the MTPD.²⁶⁹ This stems from the constitutional recognition of the coast as “public domain”,²⁷⁰ which may not be subject to embargo, divestment or prescription.²⁷¹ Reaffirming its traditions as rooted in Roman, the LDC explicitly excludes the possibility of consolidating private ownership with land in the public domain, declaring the MTPD as inalienable, imprescriptible and unseizable.²⁷² Owners of land within the MTPD are given a concession of temporary occupancy for thirty years, which may be extended for another period of thirty years,²⁷³ without a right to compensation.²⁷⁴ Expropriation of property for its inclusion in MTPD is the responsibility of the State Administration.²⁷⁵ Underpinning the stringency of this regime is the guarantee of public access and free usage “in accordance with the nature of the sea and its shore”.²⁷⁶

Development rights of owners of land surrounding the public domain are limited by the demarcation of a number of CMLs as discussed further below.²⁷⁷ In the zones created by the CMLs, landowners are restricted from undertaking construction potentially harmful to the natural environment. As an exception, landowners threatened by rising tides, are entitled to construct defense works with prior authorization provided they do not undermine the purpose of the limitations imposed in the MTPD.²⁷⁸

267 Spanish ICZM Report 10.

268 LDC Statement of Reasons.

269 Bridge & Salman 2010 “Policy Instruments for ICZM” 29; Malvárez “The History of Shoreline Stabilization” in *Pitfalls of Shoreline Stabilization* 238.

270 A 132.2 of the 1978 Spanish Constitution.

271 A 132.1 of the 1978 Spanish Constitution.

272 A 7 & Statement of Reasons of LDC.

273 Negro et al 2014 *JCR* 449.

274 Ibid 450.

275 A 110 of LDC.

276 A 31 of LDC.

277 Statement of Reasons of LDC.

278 A 6.1 of LDC.

Avoiding having to delimit the CZ,²⁷⁹ the LDC defines the MTPD in terms of other geographical features, including the seashore, beaches, dunes, cliffs, marshes and other low-lying wetlands, the territorial seas, inland water the natural resources of the economic zone and continental shelf.²⁸⁰ The exact boundaries of the MTPD are determined and adjusted by an administrative procedures delineated in Chapter III of Title I of LDC, which must be held in consultation with the ACs, the relevant municipalities, landowners of adjoining properties and any other interested parties.²⁸¹ To initiate boundary demarcation proceedings, the State may authorise the collection of data and related activities, including on the property of private landowners.²⁸² Once approved, ownership of the delineated MTPD vests in the State and landowners whose rights are affected may bring an action they deem appropriate, but must do so within five years from the date of approval of the demarcation. Given its legal, economic, political, social and environmental ramifications,²⁸³ the delimitation process proved to be a delayed venture; it was only in 2011 that the Spanish Ministry on Environment confirmed the demarcation of over 95% of the public domain.²⁸⁴ These boundaries are, however, to be revised under the 2013 Spanish Coastal Act.

To guarantee public access, an integrated CML system is operative across the CZ under the LDC,²⁸⁵ imposing a 100m protection servitude and creating what is termed a “Protective Easement Zone”²⁸⁶ (PEZ) from the upper limit of the seashore; in this zone urban residential development is, amongst other activities, forbidden.²⁸⁷ This distance may be extended to 200m in certain cases. Similar to France, there are exceptions to the zone’s restriction on development, but are of a very limited scope and are usually permitted as a matter of necessity.²⁸⁸ In general respect for rights lawfully acquired,²⁸⁹ accommodating owners of

279 FOA “Integrated coastal management law” 85.

280 A 3 & 4 of LDC; Spanish ICZM Report 10.

281 A 12.2 of LDC.

282 A 12.3 of LDC.

283 Negro et al 2014 *JCR* 450.

284 Ibid; See Annexure F.

285 See Annexure G.

286 Title II, Chapter II, s 1 of LDC; FOA “Integrated coastal management law” 174.

287 A 25.1 of LDC; Sanò et al 2010 *Coastal Management* 81.

288 A 23-26 of LDC.

289 Statement of Reasons LDC.

developments initiated or completed before the commencement of the LDC, a 20m setback operates in areas urbanized prior to 1988.²⁹⁰

The LDC also requires the establishment of an “Access to the Sea Easement” of sufficient width but only up to 500m from the inner boundary of the seashore, within which zoning schemes must permit the construction of access roads to the sea.²⁹¹ A “Right of Passage Easement”, extending 6 to 20m inland from the inner boundary of the seashore, also operates to maintain and protect the public’s right of use and access.²⁹² Finally, a “Zone of Influence” or “buffer” to the MTPD of at least 500m is established as a “means by which the Spanish central authorities impose principles regarding territorial land-use planning and zoning regulation”.²⁹³ This requires municipalities to *inter alia* prohibit building outside those zones specifically earmarked as “suitable for development.”²⁹⁴

For its radical restriction on development and ownership rights, the LDC proved inequitable towards the private rights of landowners and, moreover, failed to mitigate the pressures exerted on the CZ by poorly planned development.²⁹⁵ Understandably, the *Ley de protección y uso sostenible del litoral y de modificación de la Ley 22/1988, de 28 de Julio, de Costas* – the 2013 Spanish Coastal Act (SCA) – was developed to amend the LDC to better regulate the excesses of construction and provide legal certainty to landowners.²⁹⁶ The 2013 SCA does not, however, replace the 1988 LDC, but imposes amendments that seek to better reconcile the rights of owners, economic development activities and the protection of natural areas within the CZ. As two separate documents, the 1988 and 2013 Acts must be read in conjunction to “have a complete view of the current Spanish Coastal Law”.²⁹⁷

Important improvements include the clarification of the boundaries of the MTPD as the geographical features used to determine its spatial extent are now defined.²⁹⁸ In accordance

290 Sanò et al 2010 *Coastal Management* 81.

291 A 28 of LDC; FOA “Integrated coastal management law” 175.

292 A 27 of LDC; Sanò et al 2010 *Coastal Management* 81.

293 A 30 of LDC; FOA “Integrated coastal management law” 175.

294 FOA “Integrated coastal management law” 175.

295 Negro et al 2014 *JCR* 449.

296 Preamble of the 2013 SCA.

297 Negro et al 2014 *JCR* 453.

298 A 1 of the 2013 SCA.

herewith, whilst retaining the demarcation procedure of the LDC, with the exception of some procedural amendments, the 2013 SCA calls for the revision of the boundaries already set and to be affected by the adoption of the statute.²⁹⁹ Concomitant hereto, the statute makes provision for the reinstatement to owners or their successors-in-title of land that was included in the MTPD under the LDC, but by reason of boundary alteration under the amended law, ceases to form part thereof.³⁰⁰

Founded on the explicit commitment to legal certainty, the 2013 SCA establishes an accessible register of information on the demarcation of the MTPD to provide citizens and purchasers with accurate information on the locality of the property with respect to the public domain.³⁰¹ To grant legal security to owners with private property in the CZ,³⁰² the statute also excludes certain territories or population centres from the MTPD. Also, the thirty-year occupation concession of landowners within the public domain was extended, renewable for another seventy-five years, subject to the submission of an environmental report determining the effects of the occupation and the conditions necessary to ensure the proper protection of the MTPD.³⁰³

Alterations are also introduced to the CML system to better reconcile ownership rights with conservation interests. The “Protective Easement” is to be reduced from 100 to 20m, but only in relation to urbanized population centres if partial planning has been approved. The 100m setback will still apply to undeveloped land or land for building development without partial planning approved.³⁰⁴ The 2013 SCA also adds a new provision by which the State may declare certain parts of the MTPD to be in a state of serious regression,³⁰⁵ but, in line with its respect for existing rights, this does not affect buildings covered by a right of occupancy as long as the sea does not reach them.³⁰⁶

299 Second additional provision of the 2013 SCA.

300 Fifth additional provision of the 2013 SCA.

301 Preamble of the 2013 SCA.

302 Negro et al 2014 *JCR* 452-453.

303 A 13bis of the 2013 SCA.

304 Negro et al 2014 *JCR* 450.

305 A 13b of the 2013 SCA.

306 A 13b(4) of the 2013 SCA.

3.2.2.3 Institutions & governance

A tiered approach circumscribes the governance of the Spanish CZ where administrative responsibilities are allocated to the State (the central government) at a national level, the ACs at a regional level and the municipalities at a local level, “with all of these bodies having the autonomy to manage their own interests”.³⁰⁷ There are 17 ACs, of which five are located along the Mediterranean shore – Andalusia, Catalonia, Valencia, Murcia and Balearic Archipelago – each comprised of one or more provinces.

The State fulfils its coastal management duties via the Directorate General for the Coasts of the Spanish Ministry of the Environment (DGC-SME). Under the LDC, the DGC-SME is responsible for the overall management of the MTPD, which includes *inter alia* the authority over public works of general interest, fisheries, defence works and rights of use and passage.³⁰⁸ It is also the responsibility of the DGC-SME to allocate a budget to the ACs for coastal protection undertakings. Basic administrative powers were ceded to the regional administrators of the ACs by the 1978 Spanish Constitution and include regional planning, environmental protection, tourism planning, defence installations and use and MTPD rights of way.³⁰⁹ On a local level, the municipalities have the capacity under article 115 of the LDC to arrange and coordinate season services on beaches and assume responsibility over their upkeep, cleaning, health and safety.³¹⁰ Despite their restricted regulatory competencies, municipalities carry sole responsibility for urban development through the planning and management of land use,³¹¹ subject to the AC’s oversight role and concomitant hereto have been granted the power to declare protected zones on their own initiative.³¹²

307 A137 of the Spanish Constitution; De Vivero “Report on Spatial Planning Systems” 7.

308 Spanish ICZM Report 29.

309 Spanish ICZM Report 29; De Vivero & Mateos 2005 *Coastal Management* 205.

310 De Vivero & Mateos 2005 *Coastal Management* 205; Muñoz 2003 *JCR* 318.

311 De Vivero “Report on Spatial Planning Systems” 33.

312 Dauvin et al 2004 *OCM* 471.

Any other administrative body on national, regional or local level that seeks to regulate or develop its activities within the MTPD must do so under a permit obtained from the Coastal Districts of the DGC-SME.³¹³

3.2.3 Greece

3.2.3.1 Spatial planning & policy

Under the Constitution of Greece, Parliament, as the National Legislature, “establishes, through a series of framework acts (laws), the structure and the procedures of spatial and town planning” in Greece.³¹⁴ One such statute is Law 2742/1999, which, despite being complementary to the now repealed Law 2344/1940,³¹⁵ is still operative and sets out the legal framework for coastal spatial planning and sustainable development in Greece. It provides for two different spatial planning instruments operative at national level – the General Framework for Spatial Planning and Sustainable Development (GFSPSD), constituting a national territorial plan,³¹⁶ and the Special Frameworks for Spatial Planning and Sustainable Development (SFSPSD), constituting sectoral territorial plans.³¹⁷ The GFSPSD is a multi-sectoral plan that provides guidelines for the management and development of Greece’s territory, including coastal zones and natural resources. The current draft of the GFSPSD identifies CZs as a problem area as well as the control of the urbanization process, specifically the proliferation of illegal building activities.³¹⁸ The draft version has passed the consultation phase, it is yet to be approved by the National Parliament.³¹⁹

Expounding on the general guidelines set out in the GFSPSD, are the SFSPSDs. A draft SFSPSD on CZ management has passed the final consultation phase, but is still to be approved.³²⁰ Recently, the Special Framework for Spatial Planning of Tourism (SFSPSD) was

313 Sanò et al 2010 *Coastal Management* 81.

314 Serraos, Gianniris & Zifou “The Greek spatial and urban planning system” 1.

315 Lalenis “Coastline preservation in Greece” 7.

316 Serraos, Gianniris & Zifou “The Greek spatial and urban planning system” 3.

317 Ibid.

318 Ibid 10, 12.

319 Ibid 4.

320 Ibid 4.

approved by National Parliament at the end of 2013 after a number of revisions.³²¹ It defines the coastal area of mainland Greece as the zone that extends 350m from the “seashore” to the inland, encouraging revision of spatial planning legislation to encourage development in this area for touristic improvement.³²² Initially, it sought to extend the CML distance between the zone of construction and the seashore from 50m to 100m, but this provision was not included in the final revised version.³²³

Law 2742/1999 also provides for spatial planning at a regional level for the regions of Greece in the form of Regional Frameworks for Spatial Planning and Sustainable Development (RFSPSD). Informed by the guidelines of both the GFSPSD and the SFSPSDs, the RFSPSD must “formulate specialized proposals for all sectors concerning the spatial planning on the Regional level, respecting at the same time the specific characteristics of the Region”.³²⁴ A RFSPSD is to be supplemented by a Regional Spatial Programme, which identifies priority actions to be taken and the ways in which to fund them.³²⁵

Law 2508/1997 allows for a two-step procedure for the adoption of two primary local plans, namely the General Urban Plan (GUP) and the Town Plan (TP).³²⁶ The GUP is the first step, providing general guidelines for the spatial development of the municipal area, and the TP builds hereupon, providing specific details for land use and development. Once adopted, they are binding upon both public institutions and private individuals, mandating compliance with *inter alia* building lines, building regulations and land use designations.³²⁷

3.2.3.2 Regulation

Repealing Law 1337/1983, the Greek Coastal Law 2971 of 2001 was enacted with the objective to attain a balance between the rational development of the CZ and the protection of

321 Lalenis “Coastline preservation in Greece” 13.

322 Ibid.

323 Ibid 14.

324 Serraios, Gianniris & Zifou “The Greek spatial and urban planning system” 4.

325 Ibid.

326 Ibid 5.

327 Ibid 6.

its environmental, cultural, social and economic facets that serve public interests.³²⁸ This accords with Article 24 of the Constitution of Greece, which characterizes the CZ as “public good” whose elements constitute a vulnerable ecosystem that should be afforded special protection.³²⁹

To delimit the CZ, Law 2971/2001 provides for definitions of the geographical elements – the “seashore” and the “beach” – that converge to constitute the CZ.³³⁰ The “seashore”, which is interchangeable with “foreshore” and “shoreline”, is defined as either that “area of the coast which might be reached by waves in their maximum capacity” (the HWM) or that area which is between the low water mark (LWM) and the HWM (“the area between tide marks”).³³¹

As a public area,³³² the “seashore” is excluded from urban and regional plans, wholly exempt from permanent construction, ensuring public access and recreational development and use.³³³ The “zone consequent to the seashore to an average width of 50m” is what constitutes the “beach”, and whilst it is “public land”, it is generally zoned as “open space” susceptible to the construction of roads and pedestrian and bicycle routes.³³⁴ Under Law 2971/2001, the CZ is comprised of the aggregate of these two areas,³³⁵ and defined as “the zone separating the land from the sea”.³³⁶

Since the 1940s, under Law 2344/1940, CMLs were imposed to better regulate public use of the Greek CZ, with CML distances varying from 20 to 30m.³³⁷ Law 2971/2001 overhauled the entire preceding regime, extending this distance to a width of 50m, with the baseline set at the winter HWM, effectively creating a setback zone up to the outer boundary of the “beach” within which construction is proscribed to allow for unrestricted public access as well as the promotion

328 Sylaios et al 2015 *Coastal Management* 521.

329 Lalenis “Integrated Coastal Zone Management in Greece” 9.

330 A 1 of Law 2971/2001.

331 Lalenis “Coastline preservation in Greece” 2.

332 A 2 of Law 2971/2001.

333 Lalenis “Coastline preservation in Greece” 2.

334 Ibid.

335 Ibid 3.

336 Ibid 8.

337 Law 2344/1940 imposed a 20m CML, which was extended to 30m under Law 439/1970.

of environmental and social interests.³³⁸ The statute further mandates the establishment of beach access roads of a minimum width of 10m and prohibits fencing outside urban or planned areas of coastal properties located within 500m of the CZ.³³⁹

Absent “an objective method for the accurate determination of the highest winter water mark”,³⁴⁰ the statute’s dependence on the HWM undermines the efficiency of the CML matrix. Whilst it does provide for an extensive set of criteria to be taken into account through the use of modern scientific tools and data, Law 2971/2001 fails to delineate a precise and scientifically corroborated procedure by which to objectively delimit the winter HWM and the subsequent CML.³⁴¹ Consequent this frailty “is a series of legal disputes between coastal property owners, other involved stakeholders, potential coastal developers, and the Greek state, leading to improper law enforcement and significant delays in the implementation of coastal development projects”.³⁴² Similar hindrances were experienced prior to Law 2971/2001, whereby the courts were left to pronounce on the boundaries of the CZ in an ad hoc manner, impeding the progress in the demarcation of the CZ. To bypass litigious conflicts, Law 2971/2001 bars permanent construction, transfers or alteration of urban plans within a zone 100m from the “seashore” or “shoreline” until the administrative boundaries of the “seashore” and/or “beach have been conclusively delineated”.³⁴³ Effectively, this provisionally extends the setback zone, safeguarding the CZ against unsolicited development. In areas outside the boundaries captured in an urban plan, fences are not allowed in a zone that extends 500m from the CZ.

Founded upon the constitutional recognition of the CZ as a “public good”,³⁴⁴ ownership rights in infrastructure built within the 50m setback zone are to be expropriated,³⁴⁵ subject to full compensation, to properly safeguard public access. Furthermore, any owner wishing to construct hard defence structures must obtain authorisation by following an EIA procedure.³⁴⁶ Apart from old settlements pre-existing 1923, buildings within this the public CZ are deemed to

338 Sylaios et al 2015 *Coastal Management* 522.

339 Lalenis “Coastline preservation in Greece” 8.

340 Sylaios et al 2015 *Coastal Management* 522.

341 Ibid.

342 Sylaios et al 2015 *Coastal Management* 522; Pehlivanoglou, Rappou & Martsoukou 2006 *Mediterranean Marine Science* 16.

343 Lalenis “Coastline preservation in Greece” 5.

344 A 24 of the Constitution of Greece.

345 A 7 of Law 2971/2001.

346 Pranzini, Wetzel & Williams 2015 *J Coast Conserv* 445.

be illegally constructed, and are to be demolished post expropriation procedures. Delays in defining the margins of the CZ have nevertheless also hindered this process, effectively undermining the purpose of imposing CMLs.

Potentially undermining the stringency by which CMLs ought to be governed in a zone that continues to experience the proliferation of illegal construction, Law 2971/2001 allows for a number of construction activities to be exempt from the development prohibitions. Buildings initially constructed outside the CZ, but which have been “transposed” in it by way of erosion, are “legalized and exempted from demolition”.³⁴⁷ Furthermore, illegal constructions used as hotels, industries or fish-farming structures could also be legalized under article 27 of the statute. Article 14 and 15 provide for the leasing of seashores and beaches, the former granting concessions for works related to trade, industry, land and sea transportation and the latter for the purposes of public security, national defence, archaeological protection and environmental conservation.³⁴⁸

3.2.3.3 *Institutions & governance*

Being classified as a “public good” under article 24 of the Constitution of Greece, the CZ is deemed public property to be administered by the State.³⁴⁹ However, unlike France and Spain, in so far as it relates to the management of the CZ, there is an unclear distribution of power amongst the levels of government, resulting in fragmented governance.

At a national level, the CZ administered by a number of Ministries, particularly the Ministry of the Environment, Physical Planning and Public Works (MEPPPW) and the Ministry of National Economy and Finance. The former is responsible for the overall management of the CZ by imposing restrictions on land use in coastal areas and granting spatial approvals and environmental authorisations for works conducted in this area.³⁵⁰ The finance Ministry has the

³⁴⁷ Lalenis “Coastline preservation in Greece” 9.

³⁴⁸ Ibid.

³⁴⁹ Ibid 10.

³⁵⁰ Lalenis “Coastline preservation in Greece” 11; MEPPPW “Report of Greece Coastal Zone Management” 22.

authority to grant use rights or permits for undertaking commercial, industrial, transport and related projects in the CZ.³⁵¹

Operating under the supervision of the finance Ministry, is the Hellenic Public Corporation of Real Estate (HPCRE) – a private corporation founded in terms of Law 973/1979, functioning under Law 3429/2005. The HPCRE “is the organization with administrative control of the [CZ], in charge of management of seashores, and with responsibilities for providing relevant information to other authorities”.³⁵²

Greece is further divided into 13 Regions, which have, subsequent to the Kallikratis Programme of Law 3852/2010, been transferred “from a system of decentralized government to the system of local government”.³⁵³ It is the prerogative of each Region to manage and supervise the construction of protective structures and infill in the CZ.³⁵⁴

On a local level, the number of administrative entities was “bravely reduced”³⁵⁵ merging the two previous tiers of local government – municipalities and *communes* – with local authority now vesting solely in reformed municipalities.³⁵⁶ With respect to coastal management, municipalities are responsible for the expropriation of private properties within the CZ.³⁵⁷

3.3 Analysis of EU-Med countries frameworks against the legal elements

3.3.1 Issue identification & assessment

3.3.1.1 Assessment & data collection

In France, for the demarcation of the CML baseline, the *Loi Littoral* does mandate reliance on scientific data, which is further specified by the Decree of March 29th 2004. A similar approach

351 EC “The economics of climate change: Greece” 4.

352 Lalenis “Coastline preservation in Greece” 11.

353 Akrivopoulou, Dimitropoulos & Koutnatzis 2012 *Istituzioni del Federalismo* 675.

354 Ibid.

355 Ibid.

356 Author Unknown “Greek Administrative Geography” 1.

357 Lalenis “Coastline preservation in Greece” 11.

is followed by Greece's Law 2971/2001, which not only prescribes reliance on scientific data for the determination of the HWM,³⁵⁸ but also lists relevant factors to feed into the assessment. Nonetheless, this has proven to be unsatisfactory absent a definite, scientific methodology with the resultant litigious disputes impeding control over coastal development.³⁵⁹

Although Spain is praised for its generous sources of information in the field of CZ research,³⁶⁰ the law does not obligate reliance on specific data nor does it prescribe the scientific procedure whereby to delimit the MTPD and its constituent geographical elements, which includes the CML baseline namely the seashore. The absence of clarity in this regard is fundamental to extensive delays experienced in Spain to setting the boundaries of the MTPD.

Noteworthy is also the disjuncture between coastal spatial policies and the statutory frameworks in both Spain and Greece. The LDC does not speak to the SCS, nor does Law 2971/2001 to the CZ SFSPSD. Both these policies are founded upon the comprehensive assessment of the respective CZs, but do not feed into management decisions under the individual statutes, reflecting the lack an overarching ICM rationale to underpin the acts.

3.3.1.2 Public participation

In France, the public inquiry is only relevant to the determination of the baseline and therefore limited in the extent of influence it could have over the character of the CML. Once the baseline has been determined, the *Loi Littoral* imposes an inalterable 100m line, creating a fixed exclusion zone within which all development activities are prohibited, subject only to specified exceptions. It appears as if only a *Commune* could extend this boundary in its POS, but there is no indication that the 100m CML would be variable by public input or limited by concessions. As noted, public concerns ought to influence programme development and decision-making in all areas.

358 A 9 of Law 2971/2001.

359 Pehlivanoglou, Rappou & Martsoukou 2006 *Mediterranean Marine Science* 16.

360 Muñoz 2003 *JCR* 318.

Similar critique may be directed at the participation process under Spain's coastal law. Upon the determination of the boundaries of the MTPD, a public hearing must be held; both the LDC and 2013 SCA obligate the participation of the regional government, local towns, private owners and other I&APs. However, as in France, the representations of these parties are relevant only the limits of the MTPD. The purview of the CMLs is statutorily fixed at immutable distances, which explains the obtrusive decision to decrease the 100m PEZ to 20m as an attempt to better reconcile ownership, economic and conservation interests. Limited influence over its design clearly impedes a CML from being scoped in accordance with existing rights.

Greece mirrors this issue as the invariability of the 50m CML distance renders the location of the HWM baseline a controversial matter and participation imperative. Though Law 2971/2001 sets out environmental and other criteria to be considered for the determination of the HWM, no reference is made to public consultation, vindicating stakeholders' recourse to the judiciary for settling disputes over the locality of the HWM. Further indicative of a lack of transparency is the "considerable number of citizen's reports and queries on the proceedings and criteria used...for defining the seashore" received by the Greek Ombudsman.³⁶¹

3.3.1.3 *Impact on existing rights*

The rights of French coastal landowners are meagrely protected, with the *Loi Littoral* entitling them to a right of recourse for a period of 10 years. There is no indication that landowners could protest against the CML design or implementation, which flies in the face of ICM given that integrated management must also incorporate the social and cultural interests that may be interlinked with the ownership of the affected property.³⁶² This issue may well be further exacerbated by the application of the acquisition system. Should land fall within the 100m exclusion zone, it could easily be deemed "protection worthy" and acquired by the CELRL or the relevant *Département*, particularly with regard to the vision of the *Loi Littoral* to protect the CZ from development. A system whereby the CERLR is "actively buying"³⁶³ the CZ is critiqued

361 Pehlivanoglou, Rappou & Martsoukou 2006 *Mediterranean Marine Science* 17.

362 Duavin et al 2004 OCM 472.

363 Sanò, Marchand & Medina 2010 *J Coast Conserv* 35.

for having left landowners “aggressive and dispossessed” despite compensation.³⁶⁴ Also in Greece, the CML is statutorily imposed and, rather stringently, absolute in ambit, granting landowners compensation for properties expropriated within the 50m CML zone.

Contrary hereto, the amendments imposed by the 2013 SCA recognised the lack of proper safeguarding of ownership and occupation rights by the LDC, which had as its “main objective” the recovery of “coastal areas by restricting private property in the public domain”.³⁶⁵ Legal certainty is said to have been enhanced by the reduction of the PEZ to 20m in urban areas, the exclusion of certain population centres from the MTPD, the information register and the extended occupancy entitlement. Although these alterations appear to be more equitable towards the landowner, they fail to balance out these rights with coastal vulnerability. It is feared that they have been made absent consideration of the pressing conservation needs in an already densely populated area.³⁶⁶ If so, the extensive reduction in the extent of the PEZ may possibly refute the entire purpose of the mechanism which intends to preserve the integrity of and access to the MTPD.

Regarding public access rights, France’s recognition of its CZ as part of the *domaine public maritime* vindicates public use and access rights as it re-introduces the Roman law concept of the sea and coastline as *res omnium communes* (the common property of everyone).³⁶⁷ To some extent this may justify the interference with ownership rights by reason that the assertion of the public character of the CZ justifies the introduction of control mechanisms such as CMLs.³⁶⁸ Unlike Spain and Greece, however, it seems that the *Loi Littoral* does not impose CMLs for the creation of access zones, but rather allows for the granting of access concessions.

Similar to France, the Spanish coastal management system reasserts the legal status of the coast to be rooted in Roman law by granting the MTPD constitutional recognition as public property. In preservation hereof, CMLs are not only used to inhibit construction, thereby

³⁶⁴ Muer-Férec 1997 *J Coast Conserv* 128.

³⁶⁵ Negro et al 2014 *JCR* 449.

³⁶⁶ Frieyro & Ibáñez “New Spanish Law”; Negro et al 2014 *JCR* 453.

³⁶⁷ FOA “Integrated coastal management law” 34.

³⁶⁸ Ibid.

indirectly catering for the preservation of public access to the MTPD, but also to establish zones of access, passage and influence to directly guarantee and maintain physical entry and use.

Comparable hereto is Greece's constitutional recognition of the CZ as a public good, with access to this zone guaranteed to be unlimited.³⁶⁹ Though the 50m CML, 10m access road and 500m fencing prohibition seek to maintain public access, severe economic pressure is redirecting the emphasis towards the expansion of legal construction as opposed to the eradication of illegal infrastructure.³⁷⁰ The unrevised Tourism SFSPSD, for example, initially sought to increase the minimum construction zone of the CML from 50 to 100m, but this was removed in the final version to cater for “organized and planned areas of touristic uses and for upgrading the quality of hotel infrastructure”.³⁷¹

Also counteractive to the guarantee to public access is the accession of article 27 of Law 2971/2001 to the legalization of illegal constructions utilised for the promotion of economic activity – industry, fisheries and tourism. Lalenis³⁷² notes that “[t]he vagueness of provisions concerning use of the [CZ] endangers its nature as a public good and might alter its characteristics in an irreversible way”. Despite being a stated objective and aligned with the Greek Constitution, access is thus a subordinate ambition from a management perspective.

3.3.2 Programme preparation

3.3.2.1 Definitions & boundaries

Although the *Loi Littoral* defines the French “coast” as a geographic entity, the statute does not provide criteria to determine the geographic scope of the coast and thus fails to restrict the ambit of the statute’s application.³⁷³ The exclusive focus of the law on the CZ as a public entity has caused naturalists, geographers and legal experts to assign a “bewildering blend of

369 Lalenis “Coastline preservation in Greece” 8.

370 Ibid 14.

371 Ibid 13-14.

372 Lalenis “Coastline preservation in Greece” 10.

373 FOA “Integrated coastal management law” 87.

definitions” to the CZ,³⁷⁴ undermining the certainty of planners and regulators as to the limits within which their rules apply.³⁷⁵

The *Loi Littoral*’s CML is absolute in its scope (100m) and dependent on the demarcation of a baseline, which could be either the shoreline or the HWM. These geographical components are also not defined in the *Loi Littoral* but are to be set by administrative procedure, which, when looking to Spain, risks becoming a protracted venture absent clear pre-set parameters and procedures. The set 100m CML also proves that rigidly defined CMLs fail to respond to coastal variability, as exceptions for hard defences and concessions for access are necessary to circumvent its fixed geographic scope.

As to the proper delimitation of the CZ in Spain, the LDC does not define concepts such as shores, coasts or beaches but instead enumerates on the coastal resources and coastal environments which constitute the MTPD. The technical and legal difficulties associated herewith³⁷⁶ have seemingly been remedied by the 2013 SCA’s specification of the MTPD in terms of both the maritime zone and the beaches and the introduction of definitions on geographical features such as, for example, the beach and its respective elements, specifically the dunes.³⁷⁷

Problematic, however, is that the zones established by the CMLs are measured inland from the landward limit of the “seashore”, which is undefined in both the LDC and the 2013 SCA.³⁷⁸ It is this type of ambiguity that caused a 25-year delay in defining the extent of the public domain, stifling a systematic approach across the regions and amongst municipalities.

By defining the geographical elements that constitute the CZ under Law 2971/2001 – the seashore and the beach – CZ demarcation in Greece has been held to amount to a mere attestation of “the existing state of facts” as to the area between the LWM and the HWM.³⁷⁹

374 Dauvin et al 2004 OCM 465.

375 FOA “Integrated coastal management law” 84.

376 De Vivero “Report on Spatial Planning Systems” 24.

377 Preamble of 2013 SCA; Negro et al 2014 JCR 451.

378 FOA “Integrated coastal management law” 89.

379 Pehlivanoglou, Rappou & Martsoukou 2005 *Mediterranean Marine Science* 15-16.

Also defined in terms of the HWM, the 50m CML correlates with the extent of the “beach”, thereby restricting its application to the boundaries of the CZ. Clarity as to the geographical components is, however, rendered futile as the determination of the HWM remains problematic for lack of an overarching enunciated scientific method by which to locate it.

The fragmented approach that characterises Greece’s coastal management regime risks introducing further obscurity to demarcation. Reference is made, for example, to “coastal areas” in the Tourism SFSPSD that extend 350m from the seashore inland. This establishes a zone not statutorily regulated by Law 2971/2001, obscuring integrated, coordinated management.³⁸⁰

3.3.2.2 Institutional or administrative arrangements

Though the coastal governance model of France represents an attempt at co-operative coastal management, it is critiqued for its lack of coherence in practice.³⁸¹ Described as a “multi-level affair, with many players intervening on a variety of different scales”,³⁸² it depicts the danger of overly expansive governance system and the contradictions that may ensue upon multiple institutional actors within a single jurisdiction. Stemming from uncoordinated governance is a recorded incompatibility amongst the various planning documents fundamental to the implementation of CMLs.³⁸³

Similarly in Spain, consequent the 1978 Spanish Constitution’s conferral of power, the management of the CZ is characterised by a “complex distribution of powers”³⁸⁴ where the “multiplicity of powers with respect to the MTPD has led to situations of conflict within various administrations”.³⁸⁵ There is a lack of proper administrative co-ordination and integration between management authorities to the extent that planning and management of the CZ is

380 Lalenis “Coastline preservation in Greece” 13.

381 Dauvin et al 2004 OCM 466.

382 EC Recommendation 2002/413/EC.

383 Deboudt, Dauvin & Lozachmeur 2008 OCM 218.

384 SICZMS 29.

385 Ibid 30.

compromised.³⁸⁶ It is specifically at a local level where the land use plans of municipalities are critiqued for their pro-development sentiments that contradict the purpose of the CMLs and the general anti-construction tenants of the LDC.

Understandably, calls have been made for the development of a more general framework or strategy “to guarantee coordination and cooperation between the authorities”.³⁸⁷ The SCS does, however, speak to this to some extent with its provision for collaboration agreements between the DGC-SME and the regions that “aim to establish a stable cooperation and coordination framework between the Ministry and each region, within their respective competencies”.³⁸⁸ Further, the limited competencies of the municipalities are critiqued as an “under-use” of local, decentralised power.³⁸⁹

As evident from the discussion on coastal governance in Greece, the division of rights and responsibilities amongst the relevant authorities is neither properly coordinated nor clearly expressed. Fragmented legislative and spatial planning frameworks reveal and aggravate a lack of institutional cooperation and coordination.³⁹⁰ As an example, municipalities have reportedly stifled the implementation of Law 2971/2001 by their inability or unwillingness to enforce its provisions.³⁹¹ Analogous to Spain, demands are thus being made for “new organizational structures with a view to integrated planning for coastal regions”.³⁹²

3.3.3 Implementation & evaluation

3.3.3.1 Instruments for implementation

The restrictions imposed by France’s 100m CML is implemented through the CELRL’s acquisition system as well as the land use plans and zoning regulations of the *Communes* found in their POSs or PLUs. That a *Commune* may extend the distance of the CML in its POS

386 Bridge & Salman 2010 “Policy Instruments for ICZM” 31; De Vivero “Report on Spatial Planning Systems” 26.

387 SICZMS 30.

388 SICZMS 51.

389 Muñoz 2003 JCR 318.

390 MEPPPW “Report of Greece Coastal Zone Management” 39.

391 Lalenis “Coastline preservation in Greece” 10.

392 Beriatos & Papageorgiou “Maritime and coastal spatial planning” 16.

or PLU allows for adaptive implementation responsive to the influences of erosion and other coastal variables, which may to some extent counterbalance the invariable CML baseline set by the State.

What may be problematic is the uniformity of CML implementation where the zones set on a regional level in the SDAL intersect with those incorporated in the PLU and its PNRPP on a local level. The primacy of the *Loi Littoral*, does, however, combat incompatibility amongst these planning documents,³⁹³ at least in so far as it concerns development in the CZ, as the 100m CML takes precedence in any event.

Spain is complemented for its “veritable arsenal of land management tools” that could be used to “coordinate the various sectorial actions”.³⁹⁴ Nevertheless, apart from Andalusia, the ACs are critiqued for their lack of political will, failing to manage the CZ or “put into practice urban planning schemes” that reflect the various CMLs.³⁹⁵ Exacerbating the situation is the LDC’s failure to introduce mechanisms to effect the integrated management of the CZ.³⁹⁶ This is evident in the failure to effectively impose the 100m CML under the LDC, reducing it to 20m in the 2013 SCA.

As in France, once demarcated, Greece’s CML is implemented by way of expropriation proceedings. However, the demarcation of seashore boundaries have been deferred given a lack of municipal funding for consequent expropriation proceedings. Absent a baseline, CMLs cannot be imposed and the proliferation of illegal construction cannot be controlled.³⁹⁷ Furthermore, despite Greece’s recognition of spatial planning as “decisive” to the implementation of ICM,³⁹⁸ Law 2971/2001 has been critiqued for the failure to align its provision with the existing framework for urban, regional and environmental planning.³⁹⁹ Implementation

393 Deboudt, Dauvin & Lozachmeur 2008 *OCM* 218.

394 De Vivero & Mateos 2005 *Coastal Management* 208.

395 Muñoz 2003 *JCR* 317.

396 Sanò et al 2010 *Coastal Management* 81.

397 Lalenis “Coastline preservation in Greece” 9.

398 MEPPPW “Report on Greek Coastal Zone Management” 39.

399 Lalenis “Coastline preservation in Greece” 10.

is thus sought to be straight-lined by the introduction of the CZ SFSPSD, which will meticulously regulate construction in the CZ, but, as noted, it is yet to be approved.⁴⁰⁰

3.3.3.2 Monitoring & evaluation

Limited information is available on the monitoring techniques of the three selected EU-Med countries. From the planning and statutory frameworks, it does not appear that regular monitoring and evaluation programmes are embedded into the different coastal management paradigms. EuroSION does, however, indicate such programmes to be the exception rather than the general rule in European coastal states.⁴⁰¹ It reports that though Greece and France do conduct monitoring activities, they are mostly interlinked with experimental research projects and not necessarily mandated by law.

3.4 Summary of key lessons/conclusions

3.4.1 Issue identification & assessment

3.4.1.1 Assessment & data collection

The fixed CML lines imposed by all of the EU-Med countries reflect on an apparent disconnect between statutory prescriptions and spatial variability. Contrary to this approach, statutes that endow responsible authorities with decision-making capacity must be well-aligned and integrated with spatial plans, whose content is generally informed by data collected and disseminated through scientific process. The *ex post facto* development of national spatial frameworks in both Spain and Greece that are segregated from relevant statutory provisions inhibits ICM efforts as CMLs are developed and employed absent an accurate overview of the coastal context.

⁴⁰⁰ Beriatos & Papageorgiou “Maritime and coastal spatial planning” 16.

⁴⁰¹ EC EuroSION 25.

3.4.1.2 Public participation

From all three the EU-Med countries it is evident that statutorily predetermined CML distances render participation processes inherently problematic as it impedes CML design to be responsive to stakeholder input. Questionable is thus whether influence over the baseline constitutes meaningful participation that goes beyond the rhetoric of consultation to abate top-down decision-making.⁴⁰² Stakeholders must be given the capacity to influence, which requires a more adaptive approach from the outset whereby they are granted “a genuine opportunity to construct, discuss and promote alternative options”.⁴⁰³

3.4.1.3 Impact on existing rights

The fixed CML distances in the selected EU-Med countries also inhibit reconciliation with existing urban development and analogous ownership or development rights. It is imperative that CMLs must, from the outset, be more accommodating towards the *status quo*; otherwise ad hoc alterations or concessions will continuously have to be made. This is best exemplified by Spain’s reduction of its PEZ from 100 to 20m in urbanized areas and the extension of the occupation concession; or even the interim imposition of a 100m CML under Greece’s Law 2971/2001 prior the final determination of the CZ.

Furthermore, a rigid CML regime requires the introduction of some other consolidation mechanism to offer deprived owners a *quid pro quo*. Whether it be compensation for expropriation or a right to recourse, the indemnification of aggrieved landowners may delay implementation efforts and/or cause the entire CML regime to become financially overburdensome (e.g. Greece). It is therefore recommended that there ought to be a shift away from pre-set CML distances to not only better harmonise the system with existing rights, but also secure affordable (and thus timeous) implementation.

402 Few, Brown & Tompkins 2007 *Climate Policy* 49; see Treby & Clark 2004 *Coastal Management* 353-372.

403 Few, Brown & Tompkins 2007 *Climate Policy* 56.

As to public access, although access rights are well-anchored across all three EU-Med countries by the explicit recognition of the CZ as a public good, only Greece and Spain utilise construction CMLs in combination with a myriad of other CMLs, with some extending beyond the CZ, to properly guarantee public access and use.

3.4.2 Programme preparation

3.4.2.1 Definitions & boundaries

The “trap of imprecise [CZ] boundaries”⁴⁰⁴ jeopardises CML implementation in France, Spain and Greece, showcasing the need to not only define the CZ, but also the geographical components of which it is composed and the exact procedure by which to delimit each such constituent part. “A uniform, national definition [of the CZ] is critical to set the stage for practicable and enforceable regulations that arise from a common understanding of the boundaries of the coastal zone.”⁴⁰⁵

Also evident from all three EU-Med countries is that CMLs should preferably not be too rigidly defined in terms of a set distance. This may render them incompatible with existing rights, economic activity and coastal variability (SLR, erosion, wave run up etc).⁴⁰⁶

Furthermore, defining a CML in terms of a baseline – as is done by all of the EU-Med countries – be it the HWM, seashore or shoreline, is impractical absent descriptions of both the baseline itself and the methodology by which it is to be determined. Particularly evident from the delays in Spain and the litigious disputes in Greece is that if the demarcation of the CML is dependent on the determination of a variable HWM, the law must not only obligate reliance on data, but must also delineate a corroborated scientific process by which to utilise the information.

404 Dauvin et al 2004 OCM 466.

405 Celliers “A User-Friendly Guide to South Africa’s Integrated Coastal Management Act” (NEMICMA Guide) 17.

406 Sylaios et al 2015 *Coastal Management* 534.

3.4.2.2 Institutional or administrative arrangements

The lack of coordinated and cooperative governance in all of the EU-Med countries stems from a common denominator – fragmented planning. Despite CMLs having been proscribed at a national level by statute, in France, Spain and Greece there is a lack of an overarching national spatial planning framework that binds the spheres to liaise with one another and harmonise implementation. Actions to remedy this are evident from Spain's SCS and Greece's draft CZ SFSPSD. However, what is, in effect, necessary is a complete overhaul of the legislative and spatial planning frameworks⁴⁰⁷ to introduce a hierarchal coastal management planning system akin to that of South Africa.⁴⁰⁸ This may once and for all systemize ICM activities and programmes.

3.4.3 Implementation & evaluation

3.4.3.1 Instruments for implementation

In all three EU-Med countries, CMLs are imposed by national legislation that is to filter down into the planning regimes of the different spheres. However, the ramifications of fragmentation are carried across to implementation efforts. Here there is weak alignment, on the one hand, between statutory prescriptions and planning frameworks and, on the other, amongst the land use plans and zoning schemes of different government spheres. De Vivero and Mateos⁴⁰⁹ conclude that the failure of administrative bodies to utilise the tools that are available to them effectively portrays that implementation boils down to a matter of political will.

3.4.3.2 Monitoring & evaluation

As noted, monitoring systems are not statutorily prescribed in the EU-Med countries and are generally also absent from planning mechanisms given the lack of national planning frameworks. Unable to measure progress, ad hoc amendments to legislation and spatial

407 Beriatos & Papageorgiou "Maritime and coastal spatial planning" 17.

408 See para 4.2.1 below.

409 De Vivero & Mateos 2005 *Coastal Management* 208.

frameworks, specifically in Spain and Greece, disharmonise ICM efforts, undermining the coherence that ought to characterise the administration of the CZ.

4 THE SOUTH AFRICAN EXPERIENCE

4.1 Overview of coastal complexities

The coastline of South Africa, stretching over 3000km from the Orange River on the west coast to Ponta du Ouro on the east,⁴¹⁰ is recognised as a “rich and diverse national asset”, offering a wide range of important resources and ecological services for social opportunities and economic development.⁴¹¹ It is estimated that the exploitation of coastal resources contributes some R 57 billion to the economy, with direct benefits representing approximately 35% of the annual gross domestic product.⁴¹² Uniquely, it is also a place of cultural significance, where many customary practices or traditional uses depend on the condition and productivity of coastal biodiversity. With such appealing amenities, the CZ has become a densely populated area, with more than 40% of the South African population residing within 100km of the coastline.⁴¹³ But as all of these pressures converge, South Africa is similarly grappling with promoting sustainable coastal resource use & development.

The pervasive increase in anthropogenic pressures stemming from commercial, industrial and residential development is affecting the natural functioning of coastal ecosystems,⁴¹⁴ making the CZ more susceptible to natural risks such as erosion, SLR and weather events.⁴¹⁵ While past management practices exacerbated coastal degradation, it is hoped that NEMICMA will better direct management behaviour and actions in the CZ to ensure the sustainable and equitable use of its resources.⁴¹⁶

410 See Annexure H.

411 NCMP 4.

412 NCMP 4.

413 Palmer et al 2010 SAGJ 118.

414 National Biodiversity Framework GN 813 in GG 32474 of 3 August 2009 at 68; NCMP 14-18.

415 Palmer et al 2010 SAGJ 118.

416 NEMICMA Guide 5.

4.2 Domestic legal framework of South Africa

4.2.1 Planning & policy

A hierarchical planning framework is proscribed under Chapter 6 of NEMICMA, which requires the development of coastal management programmes (CMPs) by all spheres of government — national, provincial and local — to give practical effect to the statute’s vision of integrated and co-ordinated coastal management.⁴¹⁷

NEMICMA governs the adoption and content of the National Coastal Management Programme (NCMP),⁴¹⁸ which was launched by the Department of Environmental Affairs (DEA) beginning 2015,⁴¹⁹ encapsulating the national vision for structured and standardised coastal management and the sustainable use of coastal resources.⁴²⁰ For the attainment of this vision, the NCMP sets out a number of priorities for coastal management,⁴²¹ which include *inter alia* the provision of equitable public access to the CZ, the establishment of coastal monitoring and reporting systems to ensure informed decision-making as well as the provision of coastal information and research. For each priority, a number of management objectives are identified together with the actions that will be undertaken by the national government and the performance indicators by which to evaluate them. The priorities, together with the national management objectives, actions and performance indicators represent DEA’s commitment to implementing ICM over a five-year period until 2017.⁴²²

To facilitate co-operative governance in the management of the CZ, NEMICMA requires that the NCMP incorporate a framework that identifies the responsibilities of different organs of state and facilitates co-ordinated and integrated coastal management.⁴²³ In fulfilment hereof, the NCMP not only tables the mandatory roles and responsibilities of each sphere of

417 Ibid 42.

418 S 44 & 45 of NEMICMA.

419 DEA *Media Releases* (2015.03.15).

420 S 45(2)(a) of NEMICMA; NCMP 6; see Annexure I.

421 S 45(2)d) of NEMICMA.

422 NCMP 69.

423 S 45(2)(f)(i)&(ii) of NEMICMA.

government under NEMICMA,⁴²⁴ but also sets out the principal activities undertaken in the CZ, the statute that governs these activities and the competent authorities that regulate them.⁴²⁵

The provincial Coastal Management Programmes (CMPs) identify a provincial vision, objectives and priorities to provide an integrated, coordinated and uniform approach to coastal management in the specific province.⁴²⁶ The same applies to municipal CMPs with the only difference being that NEMICMA further circumscribes the priorities to be expounded in the CMP, emphasising the role of municipalities in addressing coastal erosion and access issues.⁴²⁷ Municipalities are also given the authority to make by-laws to ensure the proper implementation, administration and enforcement of its CMP.⁴²⁸

Aligning the CMPs is integral to co-operative governance efforts and NEMICMA caters for this by obligating the provincial CMPs to be consistent with the NCMP⁴²⁹ and the municipal CMPs to be consistent with the relevant provincial CMP and the NCMP.⁴³⁰ To ensure that this, and other prescribed criteria are met, the Minister of Environmental Affairs (Minister) is empowered to, at any time, review any provincial CMP. A similar discretion is accorded to MECs in respect of municipal CMPs.⁴³¹

In furtherance of uniform spatial planning, NEMICMA also allows for provinces to integrate their CMPs into existing provincial land development plans or integrated development plans (IDPs), programmes or strategies.⁴³² On a local level, municipal CMPs can form a constituent part of local government's IDPs and spatial development frameworks as adopted in accordance with the Local Government: Municipal Systems Act.⁴³³

424 NCMP 56-59.

425 NCMP 27-44.

426 S 47 of NEMICMA.

427 S 49 of NEMICMA.

428 S 50 of NEMICMA.

429 S 47(1)(c)(i) of NEMICMA.

430 S 49(1)(b)(i) of NEMICMA.

431 S 54&55 of NEMICMA.

432 S 46(4) of NEMICMA.

433 32 of 2000.

To ensure that programmes and plans are well coordinated with the status and health of the coastal environment, section 83(1)(e) of the Act allows the Minister to make regulations stipulating the type and format of data to be submitted to DEA or organs of state for the purposes of monitoring the coastal environment and the implementation of the Act or maintaining a coastal information system. Also, the MEC is compelled to prepare and update a report on the state of the coastal environment in his/her province, which must then feed into the national report compiled by the Minister.⁴³⁴ The NCMP provides that DEA currently “maintains a GIS for the storage and analysis of cartographic (mapped) and related environmental information” but notes the absence of a comprehensive coastal information management system that must still be developed.

Important to note is that, by virtue of South Africa’s complex and somewhat fragmented approach to environmental governance, NEMICMA’s planning framework interlinks with a vast number of other environmental land use, spatial and conservation spatial schemes. The NCMP makes mention of the “array of spatial planning processes” occurring or overlapping in the CZ, highlighting the more important statutes or plans in this regard (see Annexure J). Though a comprehensive analysis of such instruments falls outside the scope of this paper, it is imperative to be cognisant of their existence as they may come to influence the planning for and preparation of CMLs and provide tangible mechanisms for their implementation.

4.2.2 Regulation

Founded upon the constitutionally entrenched environmental right,⁴³⁵ the *National Environmental Management Act* 107 of 1998 (NEMA) was enacted to *inter alia* establish principles for decision-making on matters affecting the environment. Infiltrating CZ management, these principles were embedded in the *White Paper for Sustainable Coastal Development in South Africa (White Paper)*.⁴³⁶ The *White Paper* addressed the issue of fragmented and uncoordinated coastal management by electing “to embrace a holistic

⁴³⁴ S 93(2)&(3) of NEMICMA.

⁴³⁵ S 24 of the Constitution of the Republic of South Africa, 1996 (the Constitution).

⁴³⁶ Department of Environmental Affairs & Tourism 2000 *White Paper for Sustainable Coastal Development in South Africa*.

approach”,⁴³⁷ namely ICM. This, in turn, led to the promulgation of NEMICMA, which now represents the “landmark change in coastal management for South Africa”,⁴³⁸ aiming “to achieve holistic management of the coast”⁴³⁹ through “some degree of radical action”.⁴⁴⁰ The statute identifies the right of everyone to have the coastal environment protected and affirms ICM to be essential to the attainment thereof.⁴⁴¹

Identifying the CZ “as a unique part of the environment in which biophysical, economic, social and institutional considerations interconnect”,⁴⁴² NEMICMA dedicates an entire chapter to the delimitation of the CZ and the demarcation of its various spatial components. The “coastal zone” is defined as the area comprising CPP, the CPZ, coastal access land (CAL), coastal protected areas, the seashore and coastal waters, and includes any aspect of the environment on, in, under and above such area.⁴⁴³ Further defining the constituent elements the CZ, NEMICMA describes the “seashore” as encompassing the area between the LWM and the HWM. It further defines “coastal waters” to include the internal and territorial waters, the EZZ, continental shelf and an estuary,⁴⁴⁴ whilst “coastal protected area” is described to refer to any protected area situated wholly or partially within the CZ.⁴⁴⁵ The HWM, in turn, is defined as the highest line reached by coastal waters, but excludes any line reached consequent to exceptional or abnormal weather or sea conditions.⁴⁴⁶

As part of the shift towards a more people-centred approach to coastal governance, the CPP⁴⁴⁷ is declared to be owned by the citizens of South Africa and must held in trust on their behalf by the State.⁴⁴⁸ Though its expanse is defined in terms of other coastal areas and elements,⁴⁴⁹ the exact geographical boundaries of the CPP are to be determined by the Minister by notice in

437 NCMP 3.

438 Palmer et al 2010 SAGJ 125.

439 Goble et al 2014 OCM 36.

440 Palmer et al 2010 SAGJ 125.

441 Preamble of NEMICMA.

442 Preamble of NEMICMA.

443 S 1 of NEMICMA; see Annexure K.

444 S 1 of NEMICMA.

445 S 1 of NEMICMA.

446 S 1 of NEMICMA.

447 S 7(1) of NEMICMA provides that the CPP is made up of the coastal waters, the land submerged thereby and any island therein, the seashore, State owned admiralty reserves, State land declared as CPP and any natural resources found in or on these areas.

448 S 11 of NEMICMA.

449 See Annexure L.

the *Gazette* in accordance with section 27 of the Act, and may be adjusted if it has shifted due to natural or artificial processes.⁴⁵⁰ The intention of the CPP is improve public access, secure the natural functioning of coastal processes and protect sensitive coastline ecosystems as well as people, property and economic activities exposed to the risks of coastal processes.⁴⁵¹ Section 13 of the Act places particular emphasis on access to the CPP, granting the public the right of reasonable access, use and enjoyment provided that it does not have adverse effects or prohibits the State from performing its duty to protect the environment.⁴⁵² As a response to erosion, the Act further prohibits the construction of defence mechanisms in the CPP.

The coastal protection zone (CPZ) is established for the purpose of enabling the use of land adjacent to the CPP or of land significant to the regulation of a coastal ecosystem.⁴⁵³ It is, akin to the setback established by a CML, a continuous strip of land,⁴⁵⁴ which extends 100m inland from the HWM in urban areas or 1000m in undeveloped or rural areas, inclusive of all those CZ components enumerated in section 16. The exact boundaries of the CPZ are administratively determined or adjusted by the MEC in accordance with section 28 by notice in the *Gazette*.⁴⁵⁵ The CPZ enables the protection of the CPP, people and property from coastal processes and risks by maintaining the natural functioning, productive capacity and ecological integrity of the coastal environment.⁴⁵⁶ The CPZ influences land planning and development as any organ of state implementing national, provincial or municipal land use planning legislation is obligated to apply the law in the CPZ in a manner that gives effect to the purpose for which it the zone has been established.⁴⁵⁷

Providing a tool to protect these coastal areas as well as private property, public safety and the aesthetic value of the CZ, section 25 of NEMICMA sets the procedural framework for the imposition of CMLs. The statute refrains from imposing a set, uniform setback distance across the whole of the South African CZ and, instead, allows the relevant MEC to, by notice in the

450 S 26(1)(a) & 26(3)(a) of NEMICMA.

451 S 7A of NEMICMA.

452 S 13(1)(a)&(b) of NEMICMA.

453 S17 of NEMICMA.

454 NEMICMA Guide 23.

455 S 26(1)(b) of NEMICMA.

456 S 17 of NEMICMA.

457 S 62(1) of NEMICMA.

Gazette, establish or amend CMLs operative only within the specific province.⁴⁵⁸ The MEC must take into account the locality of existing immovable property as well as the zonation and ownership of vacant land.⁴⁵⁹ Using the CML to control development, the MEC may gazette regulations⁴⁶⁰ that “prohibit or restrict the building, erection, alternation or extension of structures that are wholly or partially seaward of a [CML]”.⁴⁶¹ Section 84(1)(e) expounds on this, allowing the MEC to include in such regulations the process to be followed to acquire permission to conduct these activities as well as the authority by whom, the circumstances in which and the conditions on which such permission may be granted. To publish or amend the notice, or make the regulations, the relevant MEC must first consult with any municipality within whose jurisdiction the CML is to be situated and also give I&APs an opportunity to make representations in accordance to the procedure prescribed under section 53.⁴⁶² The participation process entails the publication of the MEC’s intention to exercise his/her powers as well as a notice in the *Gazette* containing sufficient information to enable members of the public to submit objections within no less than 30 days.⁴⁶³ Once established, the CML must be reflected on zoning scheme maps of relevant municipalities to allow the public to ascertain the position of the CML.⁴⁶⁴ This is important as NEMICMA allows for CMLs to be situated wholly or partially outside the CZ.⁴⁶⁵

Mention should also be made NEMICMA’s provision for “coastal access land” (CAL), which is similar to a public access”, but is not created by CMLs or a setback distance. Rather it requires municipalities to make bylaws that designate strips of land that must secure public access to CPP.⁴⁶⁶ The procedure for such the designation is set out in section 19 of NEMICMA, and once complete, CAL “is automatically subject to a public servitude in terms of which members of the public may use that land to gain access to [CPP]”.⁴⁶⁷

458 S 25(1) of NEMICMA.

459 S 25(1B) of NEMICMA.

460 S 84 of NEMICMA governs regulations made by MECs.

461 S 25(1A) of NEMICMA.

462 S 25(2)(a)&(b) of NEMICMA.

463 S 53(1)(c)(i)&(ii).

464 S 25(3) of NEMICMA.

465 S 25(4) of NEMICMA.

466 S 18(1) of NEMICMA.

467 S 18(2) of NEMICMA.

4.2.3 Institutions & governance

The South African government is divided into three distinctive interdependent and interrelated spheres (national, provincial and local), which are all responsible to conduct their activities within the parameters of the principle of co-operative governance.⁴⁶⁸ NEMICMA sets out the coastal management responsibilities of the organs of state at each sphere.⁴⁶⁹

The national sphere fulfils its coastal management duties via the DEA, and its branch Oceans and Coasts,⁴⁷⁰ with the Minister of Environmental Affairs as the general authority responsible for decision-making at a national level.⁴⁷¹ NEMICMA determines that the Minister is mainly responsible for preparing, adopting, reviewing and amending the NCMP⁴⁷² and determining or adjusting the boundaries of the CPP.⁴⁷³

South Africa is divided into 9 provinces, of which 4 are coastal provinces - Eastern Cape, Western Cape, Northern Cape and KwaZulu-Natal. Each province generally has a department dedicated to the management of environmental affairs, which would include control over the governance of the coast. The MEC who has been assigned the relevant portfolio relating to coastal management is generally the provincial decision-making authority. NEMICMA requires the MEC to prepare, adopt, review and amend the provincial coastal management plan,⁴⁷⁴ determine the boundaries of the CPZ, establish or change CMLs and publish regulations governing development activities seaward of CMLs.⁴⁷⁵

On a local level, municipalities are responsible for the preparation, adoption, review and/or amendment of municipal coastal management plans,⁴⁷⁶ the determination and adjustment of

468 S 40(1)&(2) of the Constitution; s 41 sets out the principles of co-operative governance and intergovernmental relations to inform the relationship amongst the three spheres.

469 Preamble of NEMICMA.

470 DEA "Oceans & Coasts".

471 DEA "Ministry".

472 S 44(1) of NEMICMA.

473 S 27 of NEMICMA.

474 S 46 of NEMICMA.

475 S 25 of NEMICMA.

476 S 48 of NEMICMA.

the boundaries of CAL⁴⁷⁷ and the management of CAL. They are also obligated to incorporate CMLs into their zoning schemes as a means to inform land use decisions,⁴⁷⁸ making them the main body responsible for the implementation of CMLs.

NEMICMA also envisions the establishment of a number of institutional bodies that would further contribute towards co-operative coastal management, ⁴⁷⁹ including a National Coastal Committee,⁴⁸⁰ provincial lead agencies (PLAs)⁴⁸¹ and Provincial Coastal Committees.⁴⁸² The formation of these bodies is mandatory and the Act prescribes their functions, composition as well as other practical arrangements.⁴⁸³ Worthy to mention is the duty of PLAs to monitor compliance with NEMICMA, coastal management and the state of the CZ environment to further ICM and identify provincial priority issues.⁴⁸⁴ Each municipality with jurisdiction over any part of the CZ is given the discretion to establish a municipal coastal committee to *inter alia* further co-operative governance and promote uniformity in planning by integrating coastal management concerns into its IDP, SDF and other municipal plans, programmes or policies.⁴⁸⁵

4.3 Analysis of the South African framework against the legal elements

4.3.1 Issue identification & assessment

4.3.1.1 Assessment & data collection

NEMICMA “requires data and information as a key pillar supporting [an ICM] management approach”.⁴⁸⁶ Although it does not mandate reliance on scientific data upon the establishment of CMLs, the implementation of NEMICMA pivots on coastal information by incorporating a coordinated planning regime built upon issue identification and assessment. The NCMP, for example, was developed from a “Situation Analysis” that evaluated the status of coastal

477 S 26(d) of NEMICMA.

478 S 25(3) of NEMICMA.

479 NEMICMA Guide 36.

480 S 35-37 of NEMICMA.

481 S 38 of NEMICMA.

482 S 39 of NEMICMA.

483 NEMICMA Guide 36.

484 S 38(2)(b),(c) & (h).

485 S 42(4) of NEMICMA.

486 NCMP 66.

ecosystems, the coastal environment and input from stakeholder consultation; this analysis then fed into the determination of future needs and actions.

Also, NEMICMA, as read with the NCMP, foresees the establishment of a coastal information system and requires the preparation and constant review state of the environment reports by both MECs and the Minister. Given that CMLs may be amended by the MEC, this data will be able to continuously influence the scope and attributes of CMLs, enhancing their receptivity to a varying geo-spatial context.

Furthermore, NEMICMA's planning scheme interlaces with an extensive array of other planning processes and instruments. Though this risks fragmentation of coastal governance efforts, it could very well enhance ICM as all other environmental verities influencing the coastal environment could feed into CML design and implementation.

4.3.1.2 Public participation

Meaningful participation is embedded in the CML establishment process as well as the promulgation of the construction regulations. With no pre-determined form to the CML, the representations and objections of I&APs may influence the locality and nature of the line “based on local conditions and knowledge”.⁴⁸⁷ This is distinct from the EU-Med countries, where participation is generally limited to the determination of the CML baseline.

4.3.1.3 Impact on existing rights

Contrary to the EU-Med countries, NEMICMA's adaptive CML regime has the capacity to reconcile its design and purpose with the rights of landowners and other existing development rights. Absent a statutorily pre-determined width, the physical placement of the CML can vary to accommodate current cadastral perimeters. This was done, for example, in the Overberg

⁴⁸⁷ NEMICMA Guide 26.

pilot project where the CMLs were demarcated seaward of existing development footprints.⁴⁸⁸ Where existing development was found to lie seaward of this CML, “[t]o prevent an unfair limitation of the rights to develop, a boundary [was] drawn around existing legal development or properties within existing executable development rights”, which effectively created “development islands”.⁴⁸⁹

Furthermore NEMICMA mandates the MEC to consider the position of immovable property as well as the zonation of vacant land prior to establishing CMLs. Important is that the mouldable nature of the CML will allow such consideration to purposively influence the physical contours of the CML.

CMLs not do directly govern access, but are fundamental to the protection of the CPP, which is, in turn, founded to *inter alia* improve public access to the seashore. Indirectly, through the preservation of the CPP, CMLs thus facilitate access. Public access to the CPP is otherwise primarily ensured by the designation of CAL by municipalities that have CPP falling within their respective jurisdictions. Similar to the EU-Med countries, guaranteed access is grounded by NEMICMA’s recognition of the CPP as common property of the citizens of the Republic held in trust by the State.

4.3.2 Programme preparation

4.3.2.1 Definitions & boundaries

Given that CMLs are established to preserve the aesthetic value of the CZ and protect the CPP, CPZ and private property, the physical scope of these coastal areas are fundamental to the demarcation of CMLs. Distinct from the EU-Med countries, NEMICMA introduces a more standardised approach to CZ demarcation by not only defining the CZ in terms of its constituent parts, but also expounding on the coastal components that compose each of these parts. This, together with the other criteria provided in NEMICMA, is to assist in determining the geographical boundaries of the CPP and the CPZ under sections 26 and 27 respectively.

⁴⁸⁸ See Annexure M.

⁴⁸⁹ Overberg 2015 Report 21; see Annexure N.

Similar to Greece and also problematic is that the CPZ and components of the CPP (eg the seashore) are defined in terms of the HWM. NEMICMA does define the HWM, but, similar to Law 2971/2001, does not provide a method by which to establish and review the location of the HWM.

CMLs are very broadly defined in the Act and are, contrary to the EU-Med countries, not defined by a fixed distance. Since NEMICMA allows for the CMLs to either prohibit or control any type of development within or beyond the CZ, they “may be established for various reasons and there may be more than one [CML] in any given area”.⁴⁹⁰ The Western Cape’s provincial methodology project, for example, envisioned the creation of both a physical process/hazard CML to prohibit development seaward of the line and a management CML to allow for limited and/or controlled development landward of the line.⁴⁹¹ At local level, this approach was modified in the 2012 Overberg District pilot study, which moved away from a rigid line determined by mathematical modelling and sought to accommodate both long-term erosion risks and pragmatic development control by designating three conceptual lines to create a CPZ, Physical Protection Zone and a Draft Overberg Coastal CML.⁴⁹² This amendment portrays that absent a rigid definition, NEMICMA’s CMLs have the capacity to accommodate existing development footprints in municipal areas.

Of course, whilst such adaptability could serve local needs better, it could also undermine a standardised approach across and within provinces. For example, as already mentioned, the Overberg District project deviated from the Western Cape’s provincial methodology; similarly a different approach was suggested by the City of Cape Town where two CMLs were proposed, of which one would be formulated and set by the determination of the CPZ and the other by existing development or properties with existing development rights. Divergence has already been noted as a concern in the NCMP, which calls for the formation of national guidelines/norms and standards for the determination of CMLs.⁴⁹³

490 NEMICMA Guide 26.

491 *Western Cape 2010 Report* 26.

492 *Overberg 2012 Report* 37; see Annexure O.

493 NCMP 23.

4.3.2.2 Institutional or administrative arrangements

NEMICMA is commended for having created a “nested system of governance” that promotes co-operative governance by its clear assignment of specific functions to the different spheres of government.⁴⁹⁴ Such synergy is evident in the design and implementation of CMLs as the MEC is, upon the establishment of the lines, required to consult with the relevant municipality, who must then embed such determination in its zoning scheme. This arrangement accommodates responses that are both provincially coherent and sensitive to the peculiar features of a specific, municipal area of the CZ.

Further facilitating co-operative governance efforts is NEMICMA’s hierarchical planning framework that coordinates and harmonizes spatial management of the CZ across all three government spheres. As it instils the vision of the NCMP into provincial and local CMPs, its influence is carried over into provincial and local land use plans. Such approach supports the sentiment that together with the devolution of competencies amongst the tiers of government, national government must simultaneously be granted control as to instil coherence into management and planning approaches. This will allow CMLs to be responsive to local coastal dynamics whilst remaining dedicated to realising the priorities set by the NCMP.

The committees at national, provincial and local level may further provide the necessary platform to “integrate ICM policy into different levels of government and between ministries, helping to delineate the mandates of government institutions, reduce competing priorities and clarify jurisdictional boundaries and duties”.⁴⁹⁵ Problematic, however, is that such arrangement has proved to be unpragmatic in light of budget constraints, with most of the committees not yet operative more than 6 years post NEMICMA’s commencement.⁴⁹⁶

Concerns have also been raised over NEMICMA’s ambitions overburdening already under-capacitated authorities,⁴⁹⁷ especially at a municipal level. Local government has been given an

494 Celliers *et al* 2015 OCM 139.

495 Chevallier 2015 SAIIA 9.

496 NEMICMA commenced 1 December 2009; Chevallier 2015 SAIIA 18.

497 Bholweki-SSI Environmental 2009 *Environment* 69.

“unfunded mandate” causing a “standoff between the different spheres of government and is not conducive to collaborative governance”.⁴⁹⁸ Thus, “[d]espite a buoyant and well-structured national ICM framework”,⁴⁹⁹ financial constraints are hindering the co-operative efforts envisioned by NEMICMA.

4.3.3 Implementation & evaluation

4.3.3.1 Instruments for implementation

CMLs, once determined, will be demarcated on municipal zoning schemes and maps, finding application via land-use determinations. Interestingly, some of the piloted studies contemplate the use of overlay zones “as a universal mechanism for administration of [CMLs] within the ambit of town planning regulation and management”.⁵⁰⁰ Within these zones, development restrictions will be imposed in accordance to the level of risk posed to coastal quality, property and lives, “with rules and exclusions becoming more stringent as one gets closer to the shore”.⁵⁰¹ This approach is, however, not anticipated under NEMICMA and therefore affirms the mentioned need for national norms and standards to facilitate a standardised approach not only across provinces, but amongst municipalities.

Restriction on and control over development is further anticipated through the publication of construction regulations by the MEC under section 25. Criticizing the austerity of such approach, the *Overberg 2015 Report* however reports “such strict regulatory control was less than palatable” to I&APs, specifically landowners and developers by reason that “[r]egulations are absolute — in terms of not offering space for negotiation, mitigation and decision — and are consequently viewed as a top-down form of governance”.⁵⁰² Abandoning formal

498 Chevallier 2015 SAILA 18.

499 Ibid.

500 *West Coast District 2014 Report* 19; see Annexure P.

501 FOA “Integrated coastal management law” 176.

502 *Overberg 2015 Report* 12.

regulations, it vaguely proposes a “more practical and locally customisable form of development control”.⁵⁰³

4.3.3.2 Monitoring & evaluation

Unlike all of the EU-Med countries, monitoring is well-embedded in South Africa’s ICM regime, specifically with regard to NEMICMA’s provision for the establishment of the PLA as a monitoring authority and the compilation of state of the environment reports. The latter is of specific importance to “support continuous, adaptive management, i.e. improving by learning”.⁵⁰⁴ Noteworthy is the capacity of these projects to influence the CML regime as the MEC is granted the competence to alter established CMLs in accordance with coastal variability.

Building on this and unique to NEMICMA, are the performance indicators incorporated into the CMPs, which transpose ICM into something more tangible, co-ordinating decision-making across sectors of government and between organs of state.

4.4 Summary of key lessons/conclusions

4.4.1 Issue identification & assessment

4.4.1.1 Assessment & data collection

Unique to the South African regime is the integrated planning paradigm that feeds data or coastal information into management objectives. NEMICMA’s prescription of the content of the plans ensures that the spatial framework goes beyond merely securing data availability, establishing a direct link between issue identification and decision-making. This goes further than mandating reliance on scientific data. It is an approach that is to be preferred as it synchronizes context with action, ensuring that awareness of coastal needs transposes into something more tangible.

⁵⁰³ Ibid.

⁵⁰⁴ NCMP 66.

4.4.1.2 Public participation

Contrary to the approach of EU-Med countries, the inclusion of stakeholder consultation at the various stages of CML design ensures a system better aligned with local conditions and knowledge.⁵⁰⁵ It is, however, recommended that more explicit provision be made for mandatory consultation with affected landowners as in Spain's LDC. NEMICMA only references to I&As, whilst obligating the MEC to merely "consider" ownership of vacant land, thus offering a loophole to purposively consult with owners of developed property.

4.4.1.3 Impact on existing rights

Contrary to the rigidity that underpins the regimes of EU-Med states, a more variable approach is fortunately prescribed under NEMICMA where CMLs could conform to existing development footprints. Ownership is thus better reconciled with the CML matrix, abating the need for expropriation procedures and the extensive costs associated therewith. However, if the placement of CMLs are moulded in accordance to existing development, the Overberg project found that additional mechanisms such as overlay zones would have to be implemented to manage ownership expectations in accordance to current and future coastal risks.

Similar to Greece and Spain, public access to the CZ is properly safeguarded as NEMICMA allows for different forms of CMLs that may lie beyond the CZ.

4.4.2 Programme preparation

4.4.2.1 Definitions & boundaries

In South Africa, whilst the CZ and the respective geological components that compose it are well-defined, the NCMP provides that past attempts invested in the development of CMLs, similar to the EU-Med countries, reveal the need for further local and provincial guidelines on

⁵⁰⁵ NEMICMA Guide 26.

the interpretation, application and mapping of geographical boundaries.⁵⁰⁶ Evidently is it not only a substantive issue, but also a procedural one.

As noted, defining a CML in terms of a fixed distance may render the setback inflexible to the extent that it becomes incompatible with existing rights, economic development and coastal change. Wary hereof, NEMICMA leaves the nature and extent of the CML to the discretion of the MEC establishing it. As is evident from the *Overberg 2015 Report*, avoiding circumscribing CMLs in terms of a fixed distance guarantees a more pragmatic approach that accommodates existing infrastructure while facing urbanisation and coastal challenges such as SLR and erosion.⁵⁰⁷ Statutorily imposing a “safeguard” zone such as the CPZ will, however, allow “the area to be managed, regulated and restricted in a way that differs from non-coastal areas”.⁵⁰⁸

The sentiments expressed over the impracticality of defining a CML in relation to a baseline absent clear descriptions and a delineated process also holds true for South Africa. Though the HWM is defined, no uniform methodology exists as to its determination. Reflecting on the status of coastal management boundaries and the use of CMLs, the NCMP indeed highlights the need for a standardised approach and method whereby to determine this “critical geographical boundary”.⁵⁰⁹

4.4.2.2 *Institutional or administrative arrangements*

Quite distinct from the EU-Med countries is NEMICMA’s hierarchical planning framework that clearly delineates and coordinates the responsibilities of the government spheres. Together with the establishment of the committees, cooperative governance efforts should, in theory, be well enhanced. However, the concerns raised over under-capacitated municipalities and inoperative committees highlight the importance of aligning mandate with competence and capacity.

506 NCMP 23.

507 Ibid.

508 *Overberg 2015 Report* 21.

509 Ibid.

4.4.3 Implementation & evaluation

4.4.3.1 Instruments for implementation

Perhaps the most noteworthy facet of the South African ICM paradigm, quite distinct from all the EU-Med countries, is the consolidation of national, provincial and local planning programmes with the entire ICM statutory regime. This provides uniform policy directives for the management of the CZ, including the establishment of CMLs. Valuable to both implementation and monitoring, the prescribed content of the respective plans is not only focused on issue identification and assessment by setting priorities, strategies and management objectives, but also dedicated to interlink these ideals with tangible actions and performance indicators.

4.4.3.2 Monitoring & evaluation

In relation to proper monitoring, South Africa is well-advanced when compared to the EU-Med countries. The progress indicators set in the NCMP, and to be set in PCMPs and local CMPs, together with the establishment of PLAs, embed into the South African CML regime a legal platform by which to consistently review the proficiency of the entire ICM regime and the extent to which CMLs contribute to its implementation.

5 CONCLUSION

As ecocentric and anthropogenic pressures converge along the world's coastlines, the CZ has been placed at "significant risk to threats such as increased coastal erosion, sea level rise, salt water intrusion, loss of native coastal habitat,...coastal development, more frequent and severe flood and storm events, all of which are exacerbated under climate change".⁵¹⁰ Contemporary

⁵¹⁰ Jacobson et al 2014 OCM 54.

recognition of the need to give “coastal areas specific attention in management and planning”⁵¹¹ has found expression in the application of ICM.

ICM integrates risk protection into development standards and planning frameworks,⁵¹² emphasizing the need to balance the demands of urban expansion with natural resource preservation.⁵¹³ Having to embrace a varying geo-spatial context, ICM advocates the use of non-structural adaptive approaches such as CMLs to promote sustainable development in the CZ.⁵¹⁴ CMLs seek to enhance the resilience of the CZ by constructing a buffer or setback zone between the shoreline and development, effectively controlling the expansion of the coastal development footprint.⁵¹⁵

CMLs have been introduced to the South African coastal management regime via the promulgation of NEMICMA. Practical efforts to conceptualize and impose CMLs have, however, proven to be a cumbersome enterprise. To identify the frailties that hinder realisation of the CML matrix, this dissertation sought to compare legal frameworks of both foreign EU-Med countries and South Africa against a set of legal elements which would appear to underlie an effective CML paradigm. From such comparison, a number of key lessons for the improvement of the South African regime could be distilled.

Most evident is NEMICMA’s holistic approach to coastal governance that adequately addresses the majority of the factors that could hinder the effective implementation of CMLs. Underpinned by the ideals of ICM, South Africa’s CML regime clearly distinguishes itself from those of the EU-Med countries. Shortcomings do, however, seem to lie with the determination of the geological boundaries of the CZ, the location of the HWM, the conception of a uniform CML methodology and the lack institutional capacity. As noted, the NCMP already addresses the majority of these hindrances, calling for the formulation of more detailed norms and standards to function as guidelines for effective implementation.

511 *Overberg 2015 Report 1.*

512 *Clark 1997 OCM 197.*

513 *Overberg 2015 Report 1.*

514 *Clark 1997 OCM 197.*

515 *Sanò, Merchand & Medina 2010 J Coast Conserv 34.*

The question must then be asked why implementation efforts are so ineffective despite the existence of a statutory framework embedded with a theoretically comprehensive CML regime. From the experience of the EU-Med countries it is evident that the absence of a systemised approach as to the boundaries of the CZ and location of the HWM is sufficient to stagnate implementation. It is a situation exacerbated in South Africa given the absence of a fixed CML distance. For although rigidity may undermine the regime's capacity to respond to existing development, the lack of a pre-set CML scope requires the formulation of a methodology for CML determination. With no guidance from overarching norms and standards, combined with ambiguity as to limits of the CZ and the locality of the HWM, the referenced Western Cape pilot projects portray the impracticality of attempting to subsequently develop a methodology. Moreover, this is happening at different levels of government within a singular area, fragmenting any attempt at distilling a uniform approach.

The dilatory effects of an unfunded mandate on municipalities must also not be underestimated; in Greece implementation is suspended for want of funding for the carrying out of expropriation procedures. NEMICMA is critiqued for imposing an "unfunded mandate" on municipalities, who are mainly responsible for the implementation of CMLs in South Africa. Despite the majority of other elements being properly addressed, Greece portrays that the implementation of the entire regime could be brought to a halt if financially unfeasible.

At present, these isolated issues appear to prevent the formulation of a rational, uniform and coordinated CML system, thereby precluding effective implementation. As noted, the NCMP has already identified the work that remains in order to realise the potential that a CML regime holds. Nevertheless, ICM remains a process of political will; progress will thus depend on political resolve, dedicated to refining the idiosyncrasies of a new regime, which will inevitably introduce further delays. However, should these frailties be remedied, it is believed that the South African CML regime is more than capable of influencing sustainable coastal development to the extent of enhancing ICM.

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Listing Notice 1: List of Activities and Competent Authorities Identified in terms of sections 24(2) and 24D GNR 983 in GG 38282 of 4 December 2014

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ANNEXURE A: Adaptation measures to SLR, flooding and erosion⁵¹⁶

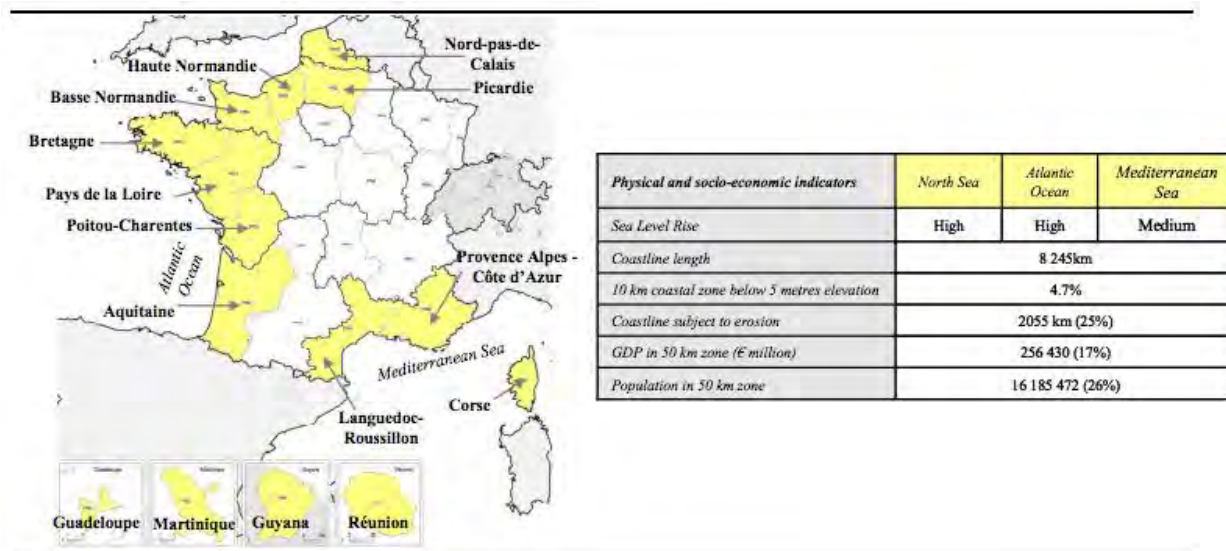
	<i>Protect</i> = effort to continue use of vulnerable areas	<i>Accommodate</i> = effort to continue living in vulnerable areas by adjusting living and working habits	<i>Retreat</i> = effort to abandon vulnerable areas
<i>Hard</i>	Dikes, seawalls, groins, breakwaters, salt water intrusion barriers	Building on pilings, adapting drainage, emergency flood shelters	Relocating threatened buildings
<i>Soft</i>	Sand nourishments, dune building, wetland restoration or creation	New building codes, growing flood or salt tolerant crops, early warning and evacuation systems, risk-based hazard insurance	Land use restriction, set-back zones

⁵¹⁶ Source: European Commission "The economics of climate change" 13.

ANNEXURE B: Overview of coastal erosion management techniques⁵¹⁷

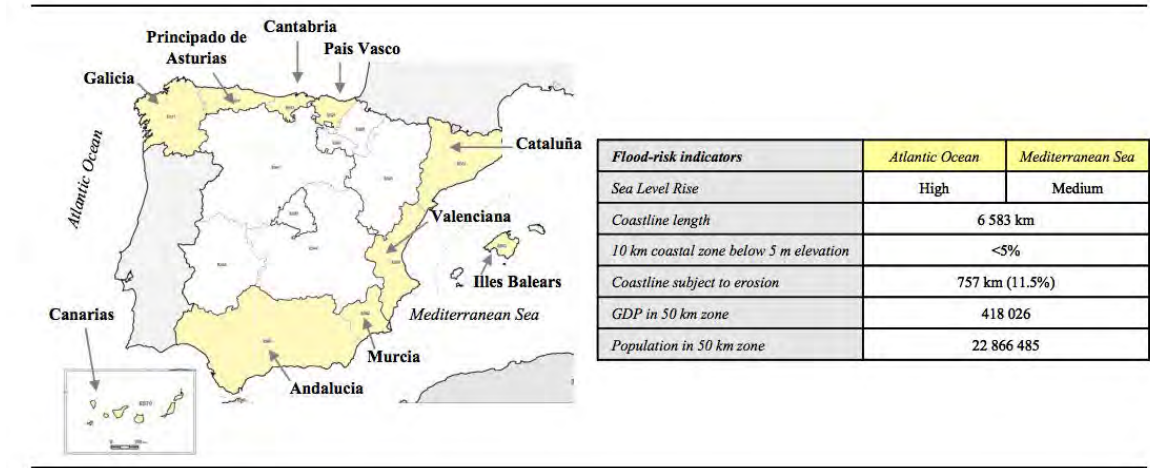
TECHNIQUES	PRINCIPLES	LIMITS OF APPLICATION
HARD TECHNIQUES		
Breakwater	Breakwaters are protective structures placed offshore, generally in hard materials such as concrete or rocks, which aim at absorbing the wave energy before the waves reach the shore.	Breakwaters reflect or diffract wave energy in destructive ways or concentrate it in local hot spots. Erosion problems and the scouring effects of the misdirected energy lead to the loss of beach / coastline and undermine the structures that were meant to be protected.
Gabion	The gabion is a metal cage filled with rocks, about 1 metre by 1 metre square. Gabions are stacked to form a simple wall.	They are used to protect a cliff or area in the short term only, since they are easily damaged by powerful storm waves and the cages tend to rust quite quickly. Gabions have the advantage of ease of use and are relatively cheap but their life span is short.
Geotextiles	Geotextiles are permeable fabrics which are able to hold back materials while water flows through. Geosynthetic tubes are large tubes consisting of a woven geotextile material filled with a slurry-mix. The mix usually consists of dredged material (eg. sand) from the nearby area but can also be a mortar or concrete mix.	Geotextiles are relatively recent but provided good results to prevent beach from retreating. Plus they are very flexible and can be re-arranged if their configuration does not provide good results.
Groin fields	Groins are structures that extend perpendicularly from the shore. Usually constructed in groups called groin fields, their purpose is to trap and retain sand, nourishing the beach compartments between them. Groins may be made of wooden or rocky materials. They interrupt the longshore transport of littoral drift. When a well designed groin field fills to capacity with sand, longshore transport continues at about the same rate as before the groins were built, and a stable beach is maintained.	Sand accumulated between groins contributes to a sediment deficit down-drift. Coastal erosion problems are then shifted to other locations. Thus, to be effective, groins should be limited to those cases where longshore transport is predominantly in one direction, and where their action will not cause unacceptable erosion of the downdrift shore.
Revetments	Revetment is a sloping feature which breaks up or absorbs the energy of the waves but may let water and sediment pass through. The older wooden revetment consists of posts fixed into the beach with wooden slats between. Modern revetments have concrete or shaped blocks of stone laid on top of a layer of finer material. Rock armour or riprap consists of layers of very hard rock with the largest, often weighing several tonnes, on the top. Riprap has the advantage of good permeability and looks more natural.	Revetments are adapted to foreshore with a gentle slope. It has the same adverse effect as seawalls though with a reduced intensity. It also results in changing the nature of the sea frontage which may lead to further changes in the foreshore ecosystems.
Seawall	Bulkheads and seawalls protect banks and bluffs by completely separating land from water. Bulkheads act as retaining walls, keeping the earth or sand behind them from crumbling or slumping. Seawalls are primarily used to resist wave action. Design considerations for these types of structures are similar. These structures do not protect the shore in front of them, however.	When bulkheads and seawalls are used in areas where there is significant wave action, they may accelerate beach erosion (much of the energy of the waves breaking on the structure is redirected downward to the toe). Bulkheads and seawalls are most appropriate where fishing and boating are the primary uses of the shore, and gently sloping areas for sunbathing or shallow-water swimming are not essential. They are also critical when risks associated to coastal erosion are imminent.
SOFT TECHNIQUES		
Artificial reef creation	Building an artificial reef which absorbs the wave energy (thus providing coastal defence), while providing a natural habitat for marine biodiversity and opportunities for recreational activities	Only few examples of artificial reef creation exist in Europe (in Sea Palling, UK mainly), but seems to provide good results.
Beach drainage	Beach drainage decreases the volume of surface water during backwash by allowing water to percolate into the beach, thus reducing the seaward movement of sediment. Beach drainage also leads to drier and "gold" coloured sand, more appreciated for recreational activities.	The technique is relatively new and experience lacks to assess its performance. It has to be noted however that beach drainage is adapted when erosion mainly occurs cross-shore (non significant long-shore drift)
Sand supply or nourishment	Artificial increase of sand volumes in the foreshore via the supply of exogenous sand. Sand supply may be achieved through the direct placement of sediment on the beach, through trickle charging (placing sediments at a single point), or through pumping. It can be also take	Beach and underwater nourishment as been very popular in the North because of the availability of sediments which has similar properties as the beach sediment. When sediment is not available and has to be imported from another region, beach
TECHNIQUES	PRINCIPLES	LIMITS OF APPLICATION
	place in the emerged part of the foreshore ("beach nourishment") or under the water line ("underwater nourishment") which is generally cheaper.	nourishment may not be the best decision. Nourishment schemes have also to be carefully designed as they may alter the biota (both on the beach and in the dredging area).
Beach scraping	Artificial re-profiling of the beach when sediment losses are not severe enough to warrant the importation of large volumes of sediments. Re-profiling is achieved using existing beach sediment	Beach scraping is among the cheapest techniques as it does not require importing sand. However, the process may have to be carried out several times before the right profile is found. It is also restricted to those beaches where cross-shore erosion is dominant and storms not heavy.
Cliff drainage	Reduction of pore pressure by piping water out of the cliff and therefore preventing accumulation of water at rock boundaries	May not be applicable for all types of cliffs.
Cliff profiling	Change of cliff face angle to increase cliff stability. The angle at which cliff become stable is a function of rock type, geologic structure and water content.	May not be applicable for all types of cliffs, and the techniques requires a fairly good knowledge of the cliff geologic structure and watering process.
Cliff toe protection	Protection of the cliff base by placing blocks at the foot of potential failure surface.	This technique is easy to achieved but do not stop erosion completely. It may therefore be adapted in those case where further loss of lands is still acceptable
Creation of stable bays	Increasing the length of the coastline to dilute wave energy per unit length of coast. While some coastline segments are protected, erosion continues between these hard points leading to the formation of embayments	This technique is almost not used in Europe and is still experimental. However, it has been envisaged for a number of sites (especially the Holland coast)
Dune regeneration	Wind blown accumulation of drifted sand located in the supra-tidal zone. Wind velocity is reduced by way of porous fences made of wood, geo-textile, plants, which encourages sand deposition	Adapted for those cases where wind plays an important role
Marsh creation	Planting of mudflats with pioneer marsh species, such as <i>Spartina sp.</i> Marsh vegetation increases the stability of sediment due to the binding effects of the roots, increasing shear strength and decreasing erodability. Marshes also provides cost-effective protection against flooding by absorbing wave energy.	Marsh creation is particularly popular in United Kingdom. However, the technique may be jeopardized by accelerated sea level rise. In this case, the accumulation of fine sediments necessary to the marsh creation may not occur in the proper way and the marsh finally collapse.
Mudflat recharge	Supply of existing mudflats with cohesive sediments. This is achieved via trickle charging (see beach feeding), rainbow charging, and polders	Such as marsh creation, mudflat recharge may be jeopardized by accelerated sea level rise.
Rock pinning	Prevention of slippage in seawards dipping rocks by bolting layers together to increase cohesion and stability. Does not prevent wave attack at the cliff base, but does reduce the threat of mass movement and thus reduces net erosion rates.	May not be applicable for all types of cliffs.
sand by-passing	Reactivation of sediment transport processes by pumping sediments accumulated up-drift by coastal infrastructure normal to the coastline and injecting them down-drift. A variant of sand by-passing is to use materials dredged for navigational purposes to reactivate the sediment transport.	This technique has been implemented by a number of harbour authorities (or dams authorities) in Europe as volumes of sand trapped by harbour breakwaters (resp. dams) are generally considerable. When sediments are trapped by a series of groins (or consecutive dams) the technique might not be cost effective anymore. It has to be noted that in the case of dams, accumulated sediment may be contaminated may not be re-injected in the sediment transport system.
Vegetation planting and/or stabilisation	Colonisation of coastal soils by vegetation whose roots bind sediment, making it more resistant to wind erosion. Vegetation also interrupt wind flow thus enhancing dune growth. As for cliffs, vegetation increases cohesion of surface soils on cliff slopes to prevent downhill slumping and sliding	Vegetation adapted to dune (eg. Marram grass) is generally very fragile and require integral protection and daily care to the dune system.

ANNEXURE C: Coastal regions of France and their main physical and socio-economic indicators⁵¹⁸



518 Source: EC “The economics of climate change adaptation in EU coastal areas: France” 2.

ANNEXURE D: Coastal regions of Spain and their main physical and socio-economic indicators⁵¹⁹



519 Source: EC “The economics of climate change: Spain” 2.

ANNEXURE E: Coastal regions of Greece and their main physical and socio-economic indicators⁵²⁰



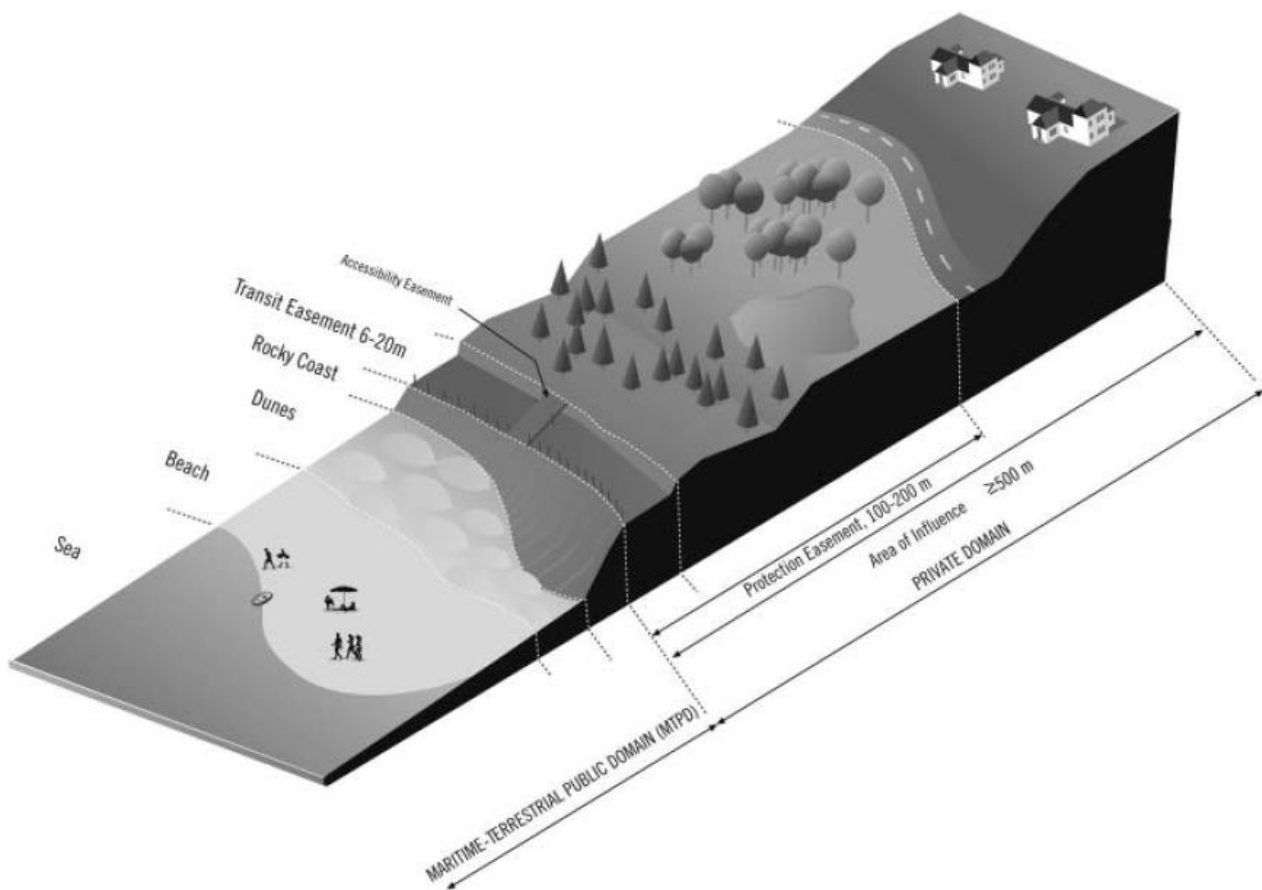
<i>Physical and socio-economic indicators</i>	<i>Mediterranean Sea</i>
<i>Sea Level Rise</i>	Medium
<i>Coastline length</i>	13 780 km
<i>10 km coastal zone below 5 metres elevation</i>	<5%
<i>Coastline subject to erosion</i>	3 945 km (28.6%)
<i>GDP in 50 km zone (€ million)</i>	140 268 (69%)
<i>Population in 50 km zone</i>	10 157 398 (92%)

⁵²⁰ Source: EC "The economics of climate change: Greece" 2.

521 Source: Negro et al 2014 *JCR* 450.



ANNEXURE G: The Spanish coastal zone⁵²²



522 Sanò et al 2010 *Coastal Management* 81.

ANNEXURE H: Biogeographical regions and currents along the South African coast⁵²³



523 Source: NCMP 12.

Vision

We, the people of South Africa, celebrate the diversity, beauty and richness of our coast and seek an equitable balance of opportunities and benefits throughout it.

We strive for sustainable coastal development – involving a balance between material prosperity, social development, cultural values, spiritual fulfilment and ecological integrity, in the interests of all South Africans.

We strive for a time when all South Africans recognise that the coast is ours to enjoy in a spirit of community.

We look forward to a time when all South Africans assume shared responsibility for maintaining the health, diversity and productivity of coastal ecosystems in a spirit of stewardship and caring.

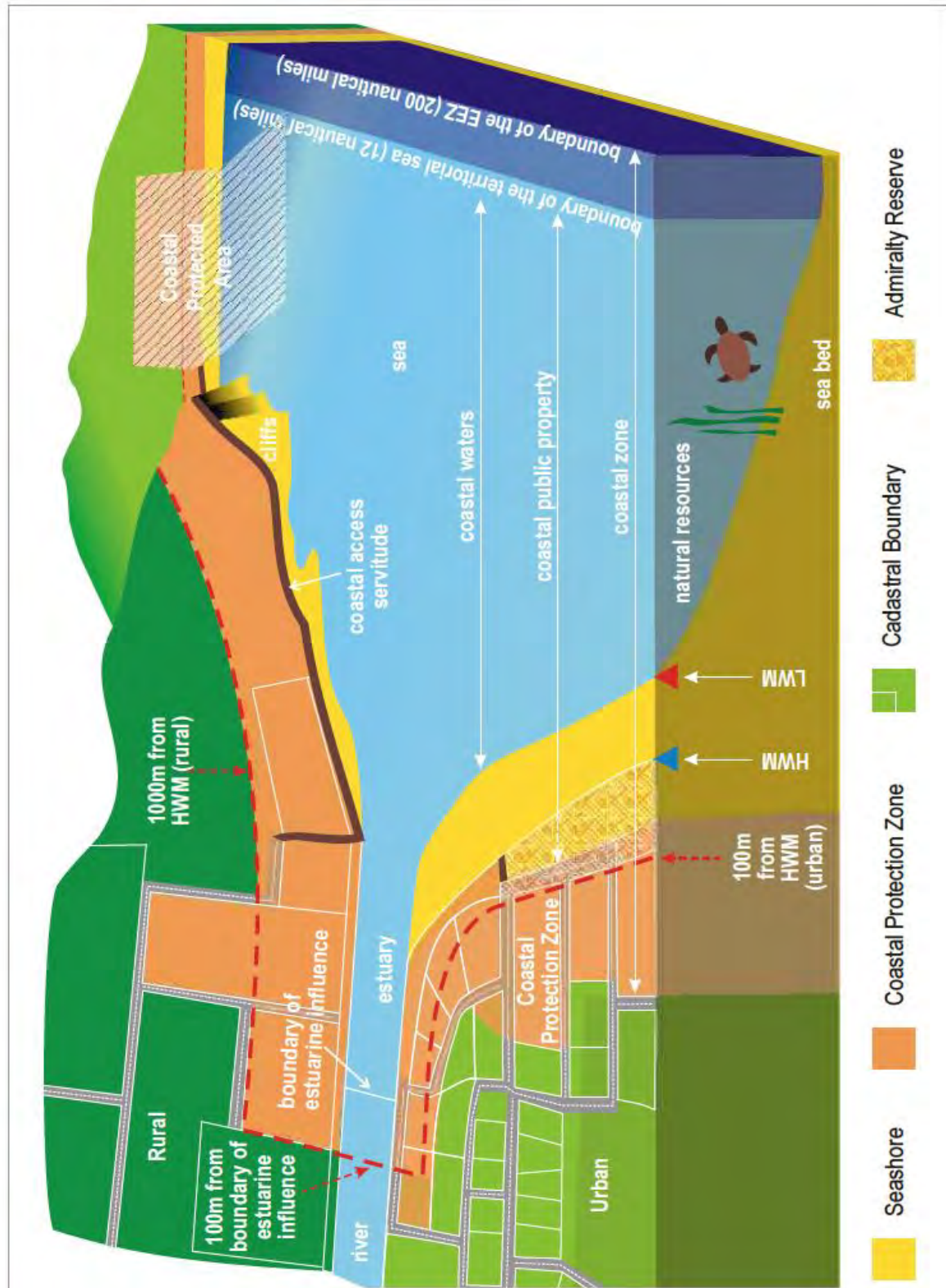
We seek to guide the management of our coast in a way that benefits current and future generations, and honours our obligations and undertakings from local to global levels.

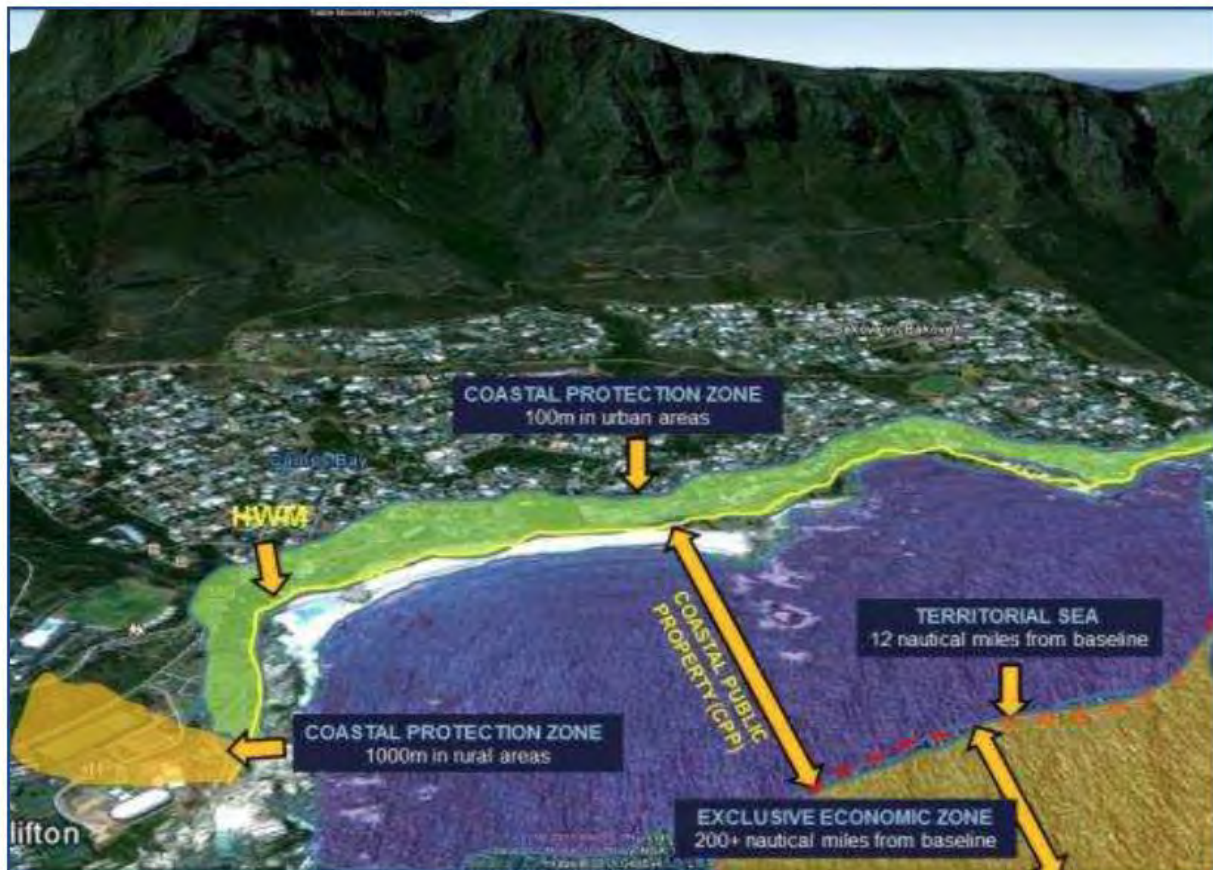
⁵²⁴ Source: NCMP 62.

ANNEXURE J: Important spatial planning (or demarcation of use area) processes occurring/overlapping in the CZ⁵²⁵

PLANNING PROCESS	KEY LEGISLATION/PLAN	LEAD AUTHORITY
National Spatial Development Perspective	National Development Plan 2030	The Presidency: NPC
	National Spatial Development Perspective (NSDP) 2006	The Presidency
	Spatial Planning and Land Use Management Bill (Notice 280 of 2011)	Department of Rural Development and Land Reform
Biodiversity protection area as informed by biodiversity planning processes	National Environmental Management: Biodiversity Act (No. 10 of 2004)	DEA
	Protected Areas Act (Act No. 57 of 2003) (Protected Areas Act)	South African National biodiversity Institute (SANBI) SANParks
	National Protected Area Strategy	DEA
Sensitive Coastal Areas	Environmental Conservation Act (No. 73 of 1989) (areas specifically gazetted, namely areas in the Garden Route and south coast of KZN).	DEA
Marine Protected Areas (MPAs) and Protected Areas (PAs)	Marine Living Resources Act (Act No. 18 of 1998) (MLRA)	DAFF
	Protected Areas Act	DEA
National parks	Protected Areas Act	DEA/SANParks
Fishing zones	MLRA	DAFF
Mining and exploration concessions	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	DMR
Shipping and navigation routes	Marine Traffic Act (Act No. 2 of 1981)	DoT
	National Ports Act (Act No. 12 of 2005)	Transnet NPA
	Port Expansion Strategies, e.g. Strategic Infrastructure Projects (SIPS)	Transnet NPA
National Water Resource Strategy	National Water Act (Act No. 36 of 1998)	DWA
Agricultural spatial plans	Conservation of Agricultural Resources Act) (Act No. 43 of 1983)	DAFF
Heritage areas	National Heritage Resources Act (Act No. 25 of 1999)	DEA through South African Heritage Resources Agency (SAHRA)
Estuary zoning plans (as part of estuary management plans)	National Estuary Management Protocol (ICM Act)	District Municipalities
Coastal set-back lines/ Management lines	ICM Act	MEC
Coastal planning schemes	ICM Act	DEA, Responsible provincial authority and municipalities
Special management areas	ICM Act	DEA
Provincial and municipal SDFs, land use plans and zoning schemes	Municipal Systems Act (Act No. 32 of 2000),	Relevant provincial authority Municipalities
	Spatial Planning and Land Use Management Act (Act. No. 16 of 2013) (SPLUMA)	
	Provincial Planning and Development Acts	

525 Source: NCMP 23-24.





ANNEXURE L: The South African coastal public property⁵²⁷

COASTAL PUBLIC PROPERTY INCLUDES THE FOLLOWING:	DESCRIPTION
Coastal waters	Marine waters that are part of South Africa's internal waters (all waters landward of the Maritime Zones Act baselines, and all harbours) or territorial waters (the sea within 12 nautical miles from the Maritime Zones Act baselines), including estuaries (see Figure 1.1. on page 15).
Land submerged by coastal waters	This includes land and the material underneath that land that is covered by coastal waters, or land flooded by coastal waters e.g. when a harbour or canal system is excavated.
Any island in coastal waters	Any natural or artificial island, except any part of an island that was lawfully alienated (transferred or sold) before the ICM Act took effect, or an artificially created island that is declared by the Minister not to be part of coastal public property.
The seashore	The area between the Low-Water Mark and the High-Water Mark, except parts of the seashore or coastal cliffs that were lawfully alienated in terms of the Seashore Act (Act No. 21 of 1935) before the ICM Act took effect.
Any Admiralty Reserve owned by the State	Admiralty Reserve means any strip of state-owned land adjoining the inland side of the High-Water Mark and includes land designated, on official plans, deed of grant or title deed, or other document that demonstrates title or land-use rights as "government reserve", "beach reserve", "coastal forest reserve" or other similar reserve owned by the State.
Any other State land declared as coastal public property	The Minister may declare (and withdraw any such declaration) any State owned land as coastal public property in order to achieve certain objectives. The reasons and process to do so is explained in Section 8.
Any natural resources	Any natural resources on or in coastal public property as described above, but also including the Exclusive Economic Zone or in or on continental shelf, as well as in any harbour, work or installation on coastal public property owned by an organ of State.

⁵²⁷ Source: NEMICMA Guide 20.

ANNEXURE M: Example of the location of the coastal management line in urban areas⁵²⁸



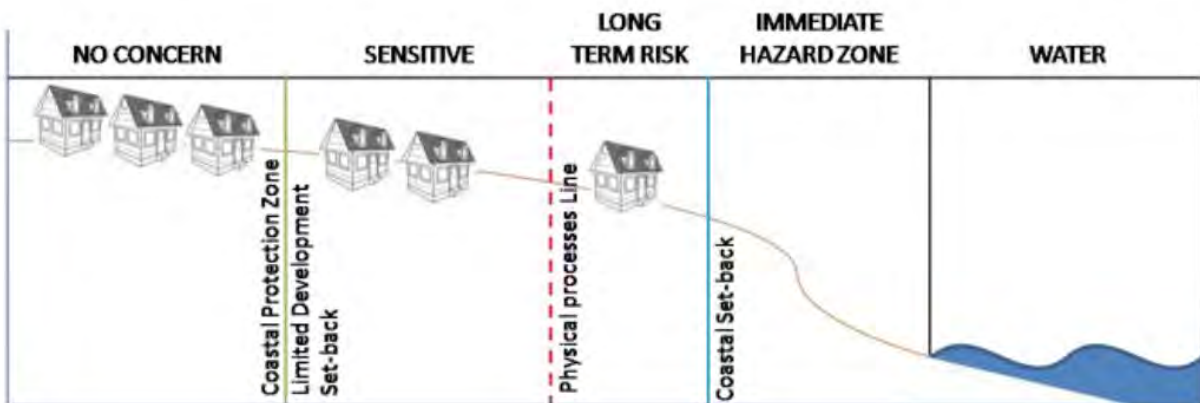
⁵²⁸ Source: Overberg 2015 Report 16.

ANNEXURE N: Example of development islands within general area of restriction⁵²⁹



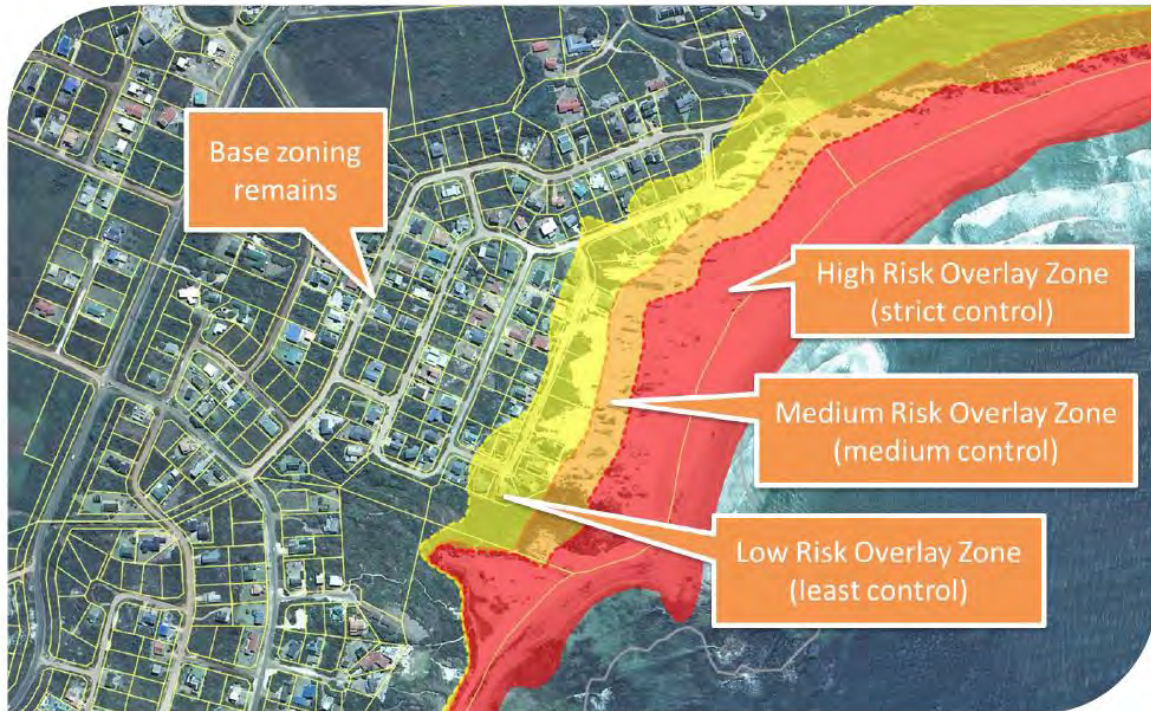
529 Source: Overberg 2015 Report 21.

ANNEXURE O: Overberg District 2012 pilot project coastal management line concept⁵³⁰



⁵³⁰ Source: Overberg 2012 Report 37.

ANNEXURE P: Example of the application of risk zone overlays as part of a local municipal zoning scheme⁵³¹



⁵³¹ Source: *Overberg 2015 Report 18*.